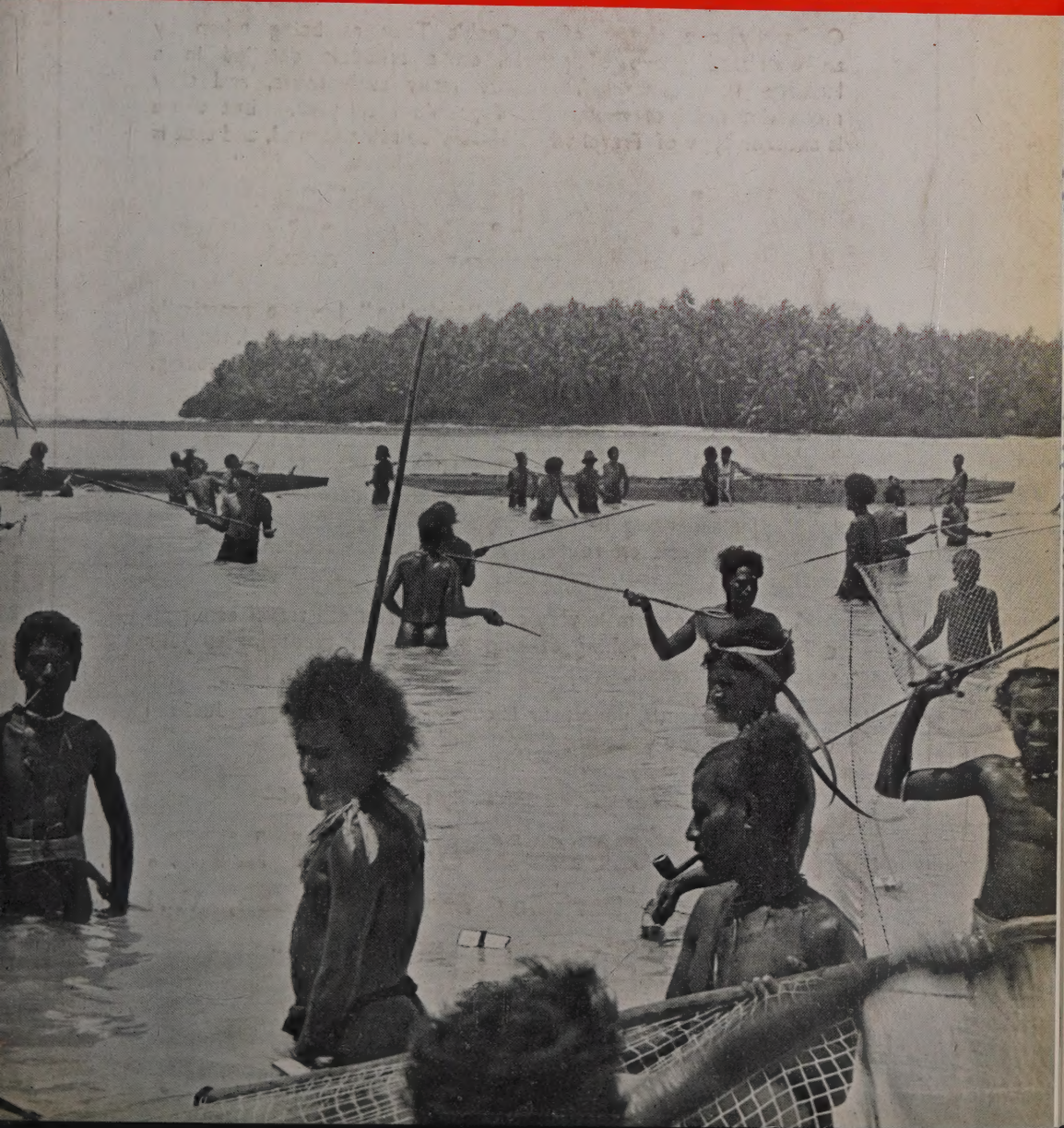


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The Dead Cities of Ceylon

by ELSPETH HUXLEY

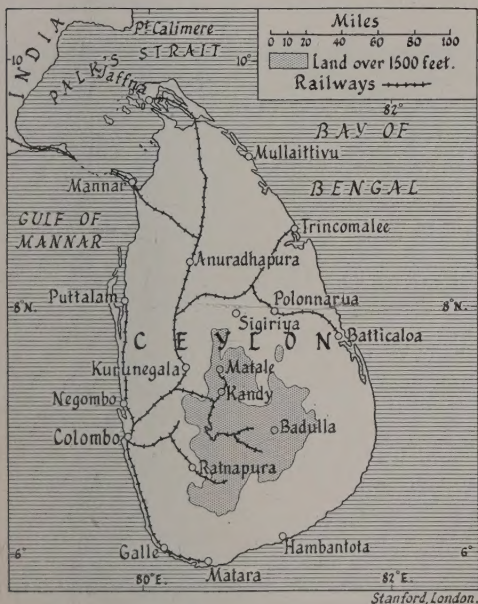
Among the deserted cities with which the East abounds, Pagan in Burma and Angkor in Indo-China have already formed the subject of articles in The Geographical Magazine. Their streets many miles long, their architectural splendours, their centuries of prosperity, enable us to estimate the size, quality and duration of our own cities with a due sense of their relative importance in the scale of human achievement

Two thousand years ago a city the size of modern London stood in what are now the tangled and deserted jungles of Ceylon. Its greatest building, the Brazen Palace, was nine stories high, two more than is permitted in our own capital today. The summit of its mightiest religious pile, the Abhayagirya *dagaba*, rose 50 feet higher than the dome of St Paul's; the bricks contained in its bulkiest *dagaba* would construct a town the size of Ipswich. A single street ran from the north gate to the south for the best part of 16 miles, and probably the number of people living in this one city exceeded the present Sinhalese population—three and a half millions—of the whole of Ceylon. Bathing pools of smooth granite, so solidly built that they persist today

while Roman baths have crumbled, reflected foliage from the shady trees with which the city's many parks were planted; hospitals and dispensaries were maintained for the sick and almshouses for the poor. From a distance the centre of the city must have seemed to burn like an earthbound sun, for the Brazen Palace was roofed with brass; inside, the pillars supporting its 900 rooms were overlaid with copper, and the ivory throne was decorated with the sun in gold, the moon in silver and the stars in pearls.

On the outskirts of the city lay gardens where flowers were grown for the decoration, on feast days, of temples, streets and *dagabas*. On several occasions the most sacred *dagaba*, containing a collar-bone of the Buddha, was wreathed from crown to base with a mass of orchids, lotus and jasmine. These *dagabas*, massive mounds of brick, have outlasted the halls and temples which surrounded them, and today they are the only features of the city to survive in anything like their original form. They were generally built to house a sacred relic of the Buddha's person, although occasionally more frivolous reasons were given; one, for example, was erected by King Dutugemunu as a gesture of apology to the priesthood for failing to share a particularly good curry with the priests.

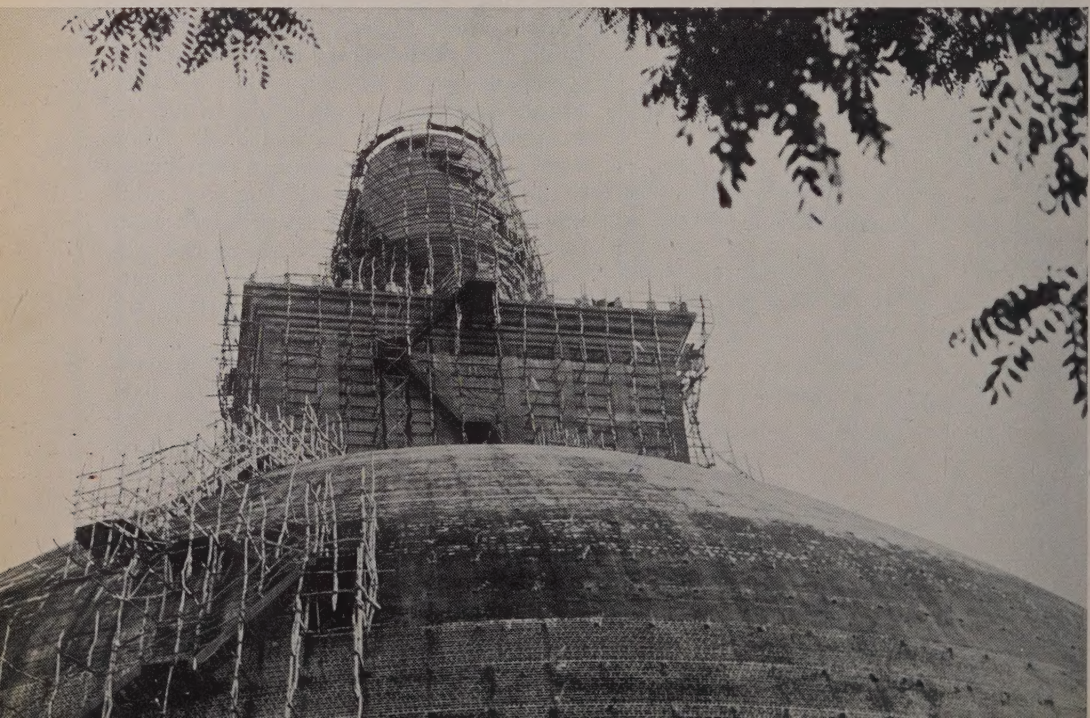
Beyond the gardens stretched mile upon mile of carefully tended rice-fields, irrigated from immense reservoirs constructed throughout Lanka, as Ceylon was then called, by a succession of kings. In those days the island, now an importer of much of the rice on which its people live, not only grew all the food necessary for the





All photographs by Elspeth Huxley

The ancient city of Anuradhapura, founded in the 5th century B.C., covered an area as large as modern London. The stone monoliths seen above are all that remain of the 1600 gilded pillars of its finest building, the Brazen Palace, once nine stories high. Below is one of the numerous brick 'dagabas' built to house sacred relics, some of which are now being restored





Ruins of public baths at Anuradhapura indicate that the Sinhalese enjoyed bathing as much as the Romans. The king had a private bath (above) set apart under the trees. An elaborate system of 'tanks', or reservoirs, supplied the water and irrigated the rice-fields. There are about 5000 of such 'tanks', many of them, like the one below, now disused and coated with water-lilies

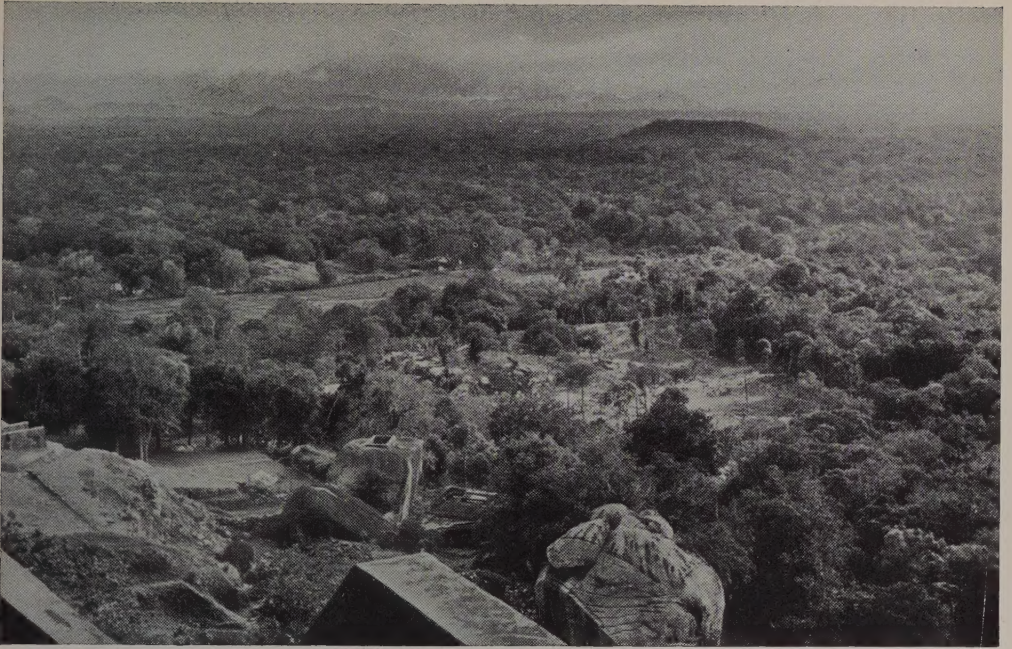




Sigiriya—an island of rock jutting out of a sea of jungle. It was made into a fortress by Kasyapa I (c. A.D. 470), who slew his father and fled there to escape his brother's vengeance



These galleries, built by Kasyapa up the face of the rock on whose summit he built his palace, are covered with the original plaster, chunam, applied 1500 years ago and still intact



From Sigiriya's summit, the council chamber and bath, hewn out of rock, can be seen below. In Kasyapa's time the jungle now stretching to a far horizon was probably mostly under cultivation



Kasyapa's council chamber was made by splitting a huge rock vertically into two and laying half of it flat, as a slice of cake might be turned over on a plate

support of its larger population, but exported a considerable surplus. Its greatest wealth lay in gems. Merchants came from all over the civilized world to trade silks, carpets, sandalwood and slaves for the rubies, sapphires and pearls of Ceylon. Ambassadors were despatched to foreign countries; Pliny refers to their reception in Rome, and their successors visited the court of the Emperor Julian.

Such was Anuradhapura, for nearly twelve centuries the capital of Lanka. It was founded in 437 B.C., about a century after the Sinhalese first reached the island from the mainland of India, and dispersed the aborigines, now called Veddahs, into the jungle.

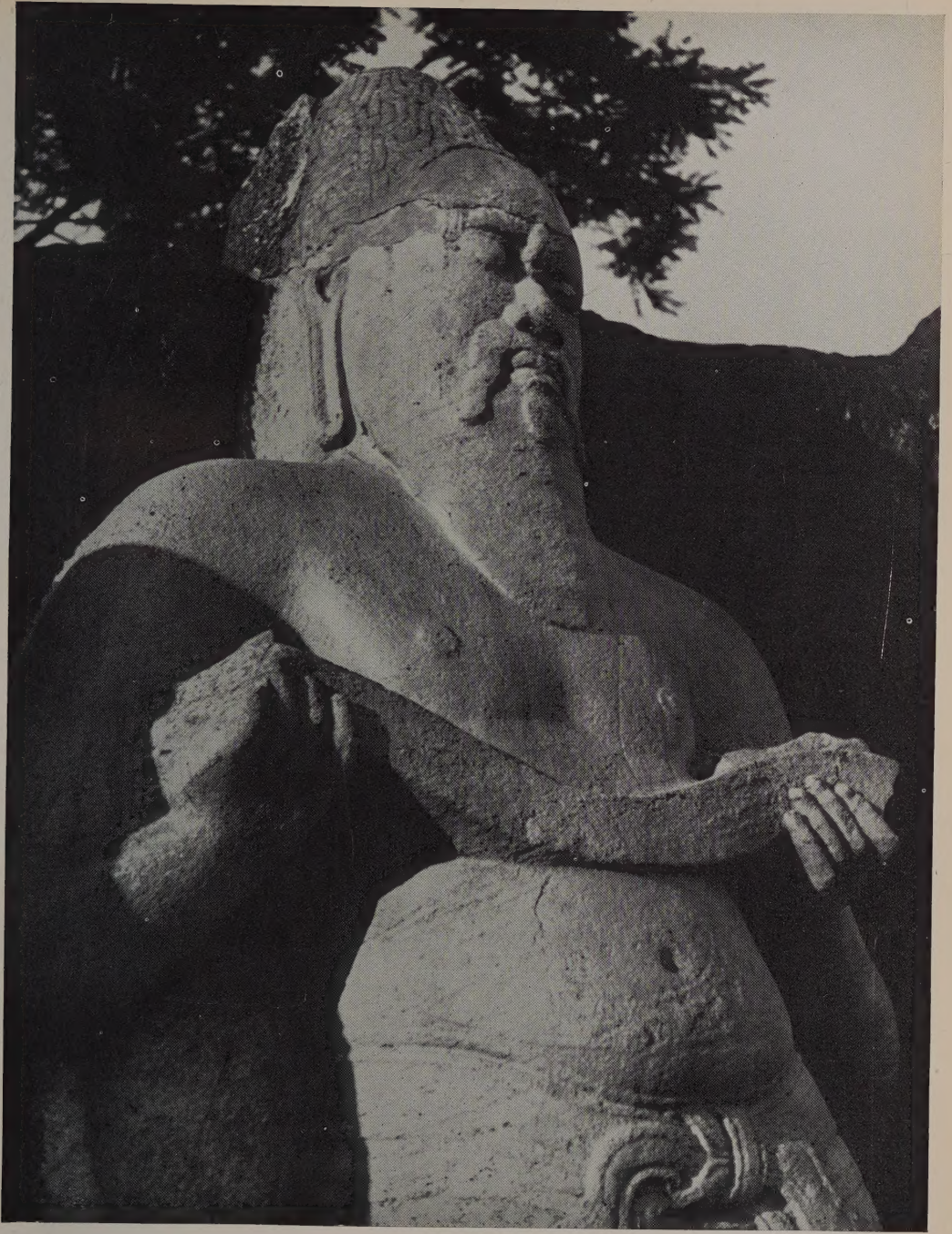
The force which drove the invading Sinhalese to express themselves in such mighty works of stone was religious. In the 3rd century B.C. a missionary prince from India, Mahindo, won over Tissa, the reigning king of Lanka, to Buddhism. Tissa erected temples and monasteries and the first *dagaba* to mark the devotion of himself and his people to the new-found faith. Amid great ceremony he cut the boundaries of the sacred heart of the city—all that can now be traced—with a golden plough drawn by elephants; and ‘at the completion of the junction of the sacred boundary line’, a historian records, ‘the earth quaked’. During his reign, in 288 B.C., a branch of the bo-tree under which Gautama attained Buddhahood was brought to Ceylon. On arrival in Anuradhapura, ‘at the hour when the shadows are most extended’, it leapt 80 cubits into the air and gave forth a halo of six colours. Then it entered the ground of its own volition; the earth quaked, and dense clouds shrouded it for seven days. This bo-tree, now over 2200 years of age, may still be seen growing, guarded by yellow-robed monks and worshipped by pilgrims: the oldest historical tree in the world.

The Sinhalese people were on the whole sincere in faith, peaceful in nature and diligent in art. Their highly organized

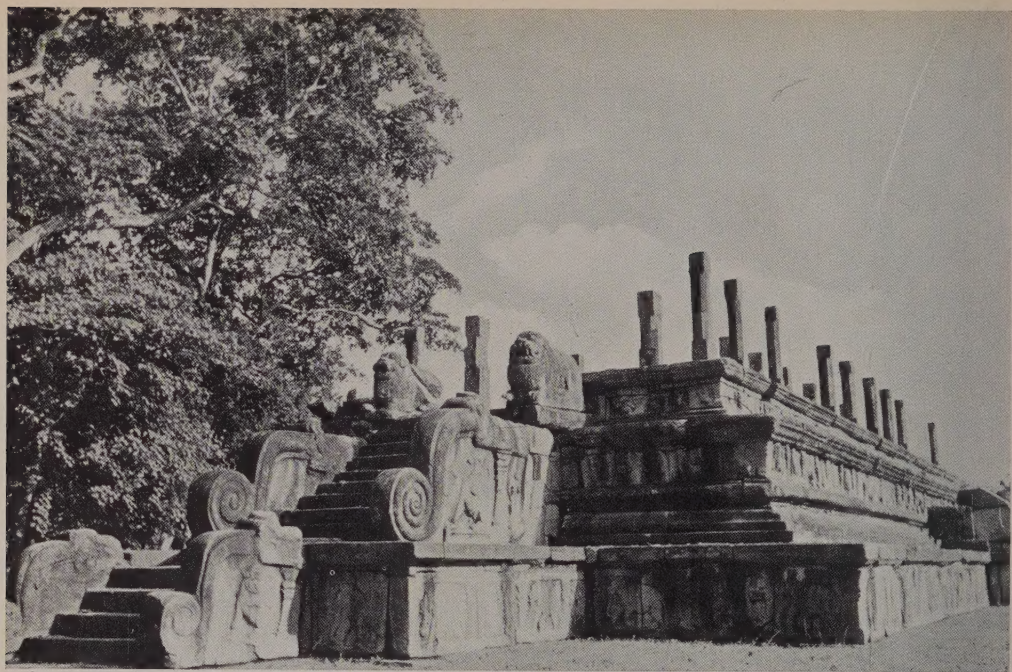
civilization was destroyed by successive invasions from India’s mainland of warlike and savage races, whose energies were turned to destruction rather than to creation. In spite of superior brains and resources, the Sinhalese proved unable to defend their country. This fatal weakness was largely due to their habits of intrigue and internal dissension, which at the least hastened, and perhaps caused, the collapse of their culture.

The story of Kasyapa, founder of the rock fortress of Sigiriya, illustrates this tendency in Sinhalese history. In A.D. 459 King Dhatu Sen came to the throne, after a prolonged war against the Tamil invaders whose claws were already tightening their grip on the island. Dhatu Sen had a favourite daughter whom he married to a nephew, the commander of his army. This nephew ill-treated the princess, and the King, hearing his daughter’s story, flew into a rage and ordered his son-in-law’s mother to be burnt alive. At this the outraged man conspired with the King’s eldest son, Kasyapa; the standard of rebellion was raised; Dhatu Sen was captured, chained and walled up to perish by slow degrees; and his son Kasyapa reigned in his stead.

The murdered King’s younger son, Mogallana, vowed revenge, and fled to India to escape his brother. Kasyapa, haunted by his crime and dreading his brother’s vengeance, abandoned Anuradhapura for the summit of a huge rock, Sigiriya, where he built a palace surrounded by impregnable defences. He hewed a gallery to the top of the rock, covering it with a hard, shiny-surfaced plaster called *chunam*, which today, 1500 years later, remains as compact and neat as in Kasyapa’s time. In a guard-house half way up the galleries there are paintings on the plaster, whose colours appear as vivid as the day they were made. The authorship of the pictures, which all represent women naked to the waist and hung about with ornaments, is unknown; it has



King Parakrama (A.D. 1164) turns his face away from Polonnaruwa, the city he rebuilt and ruled, to seek consolation in the book of law, written on palm leaves, which he holds in his ageing hands



Polonnaruwa succeeded Anuradhapura as the Lanka capital, giving fresh scope to the Sinhalese genius for architecture and the shaping of masonry. (Above) The council chamber, standing on a terrace decorated with elephants and dwarfs. (Below) A relic-house, with a frieze of lions round the base





The 'floral altar' at Polonnaruwa is enclosed in a stone post-and-rail fence and surrounded by curved pillars, unknown elsewhere in Ceylon. The 'circular relic-house' (below) is also unique, its inner walls adorned with a floral pattern above, and with dancing dwarfs and heraldic lions below





Semicircular 'moonstones' pave the entrances to relic-houses and temples in both Anuradhapura and Polonnaruwa; because the Sinhalese go barefoot the stones are scarcely worn. They are carved with sacred geese, lions, elephants and prancing horses; there is always a lotus flower in the centre

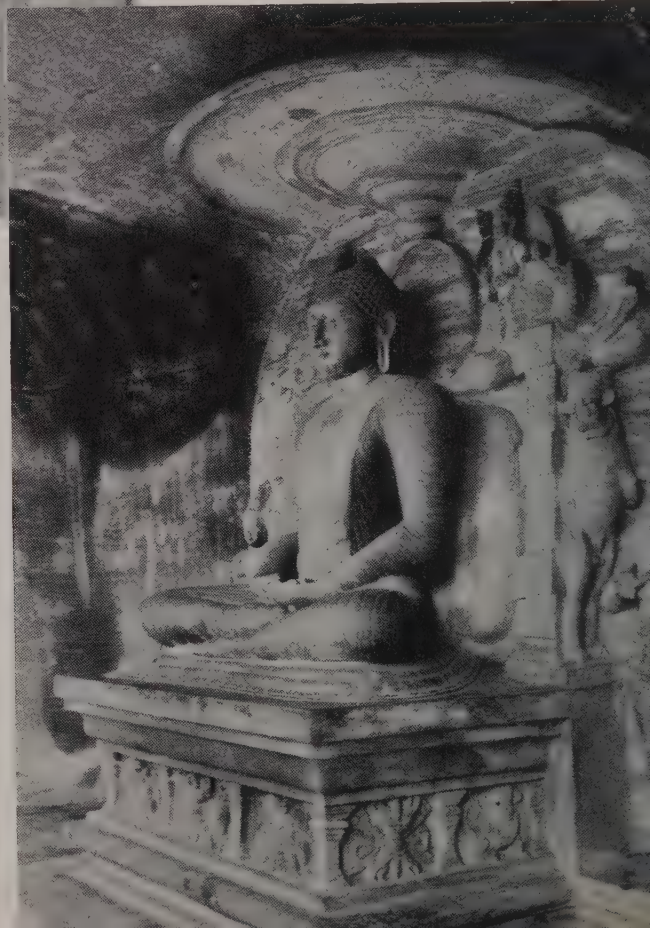




A headless Buddha, 40 feet high, towers over one of the ruined temples of Polonnaruwa



The chunam coating of the headless Buddha has peeled off to reveal the bricks beneath. It is believed that, in King Parakrama's day, a single ray of sunlight shone through the dimly lit temple onto the statue's face, surrounding it with a golden halo



The rock-temple (Gal-vihara), 'the cave of the spirits of knowledge' is hewn out of a solid granite face, and in it broods a Buddha seated on a carved pedestal. The rock background is decorated with figures of Hindu gods, who played a considerable part in the religion of the Sinhalese Buddhists

been attributed to bored but artistic soldiers in need of some activity to fill the long hours of their watches. Below, Kasyapa caused baths, council chambers and temples to be hewn out of the rock.

Mogallana kept his word. He raised an army in India, invaded Ceylon, and enticed Kasyapa out of his invincible fortress. The armies met on the plains below, and for some time the issue was in doubt. At a critical moment Kasyapa, intending to lead his bodyguard to the attack in a different part of the field, wheeled his elephant round; and his troops, mistaking this for a signal to retreat, broke and fled. Mogallana himself struck off the head of his parricide brother.

Invaders from the mainland broke in successive waves upon the Lanka kingdom, until, in the 7th century A.D., Anuradhapura was submerged. The Sinhalese abandoned their capital and set up a new one at Polonnaruwa. The old temples were razed; the Brazen Palace looted and destroyed. The invaders had no use for cities; Anuradhapura crumbled into ruins, its streets deserted and its gardens overgrown, and the surrounding irrigation works were abandoned.

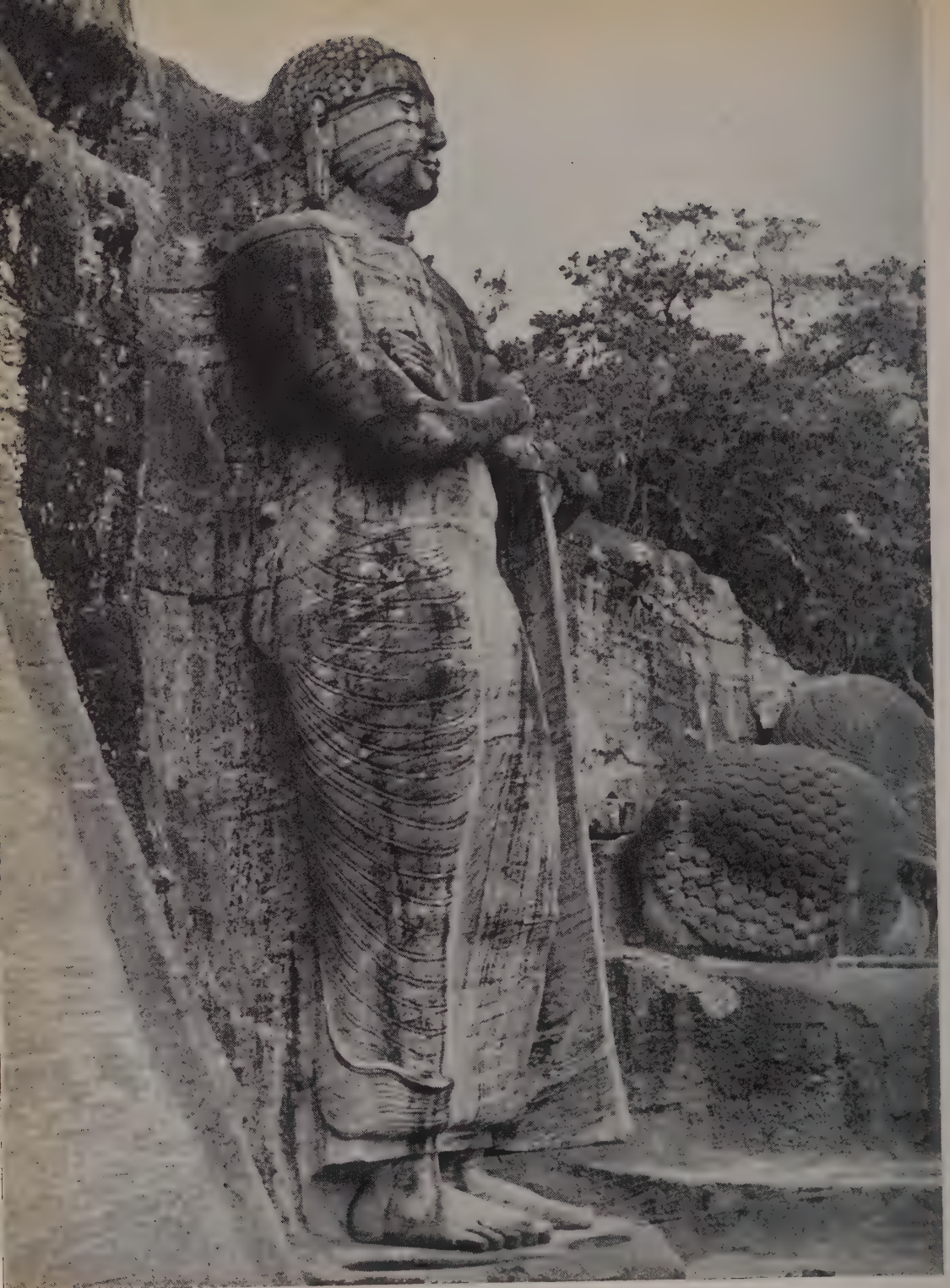
Polonnaruwa remained the capital from 769 until 1240, when the Sinhalese were driven out for good by Tamil hordes. Because of its later date, more survives of its temples and palaces than of those at Anuradhapura; it is the most spectacular of the Ceylonese ruins. It owes most of its beauty to the great king Parakrama: warrior, student, artist and administrator, who, historians relate, had 'eyes that were long like the lily'. After forcing his way to the throne in 1164 he expelled the Tamils, repaired the irrigation works, made 1470 new reservoirs, and fortified and rebuilt the capital.

For a short time Lanka's prosperity flared up again. Temples were built for sacred relics, monasteries established, the monks provided in winter with 'cloaks and firepans and divers drugs in abundance',

and free issues made of 'bulls for the use of cripples' and 'rice for ravens, dogs and other beasts'. Polonnaruwa must have been a civilized and beautiful city. All around it stretched rice-fields irrigated by the elaborate system of reservoirs on which Lanka was vitally dependent and which at the same time rendered it particularly vulnerable. The destruction of the 'tanks' by invaders was probably one of the prime causes of the downfall of Sinhalese civilization.

Parakrama even turned the tables on his Tamil enemies by invading the mainland and conquering the Pandi in South India in seven battles. The coastal belt, says a historian, 'seemed like one great workshop busied with the constant building of ships'. Cambodia was next invaded, the king slain, and the country forced to pay tribute to Lanka. When he felt death approaching, Parakrama caused a monument to himself to be hewn out of a great rock outside the walls. It represents the King, tired of war and action, with his back to the city he had made and served, seeking final consolation in the book of law held in his ageing hands.

Among Parakrama's buildings was a seven-storied palace with walls ten feet thick; a temple for the cherished relic, Buddha's tooth, which reached Ceylon in A.D. 311 in the hair of the king of Orissa's daughter, and is now supposed to be lodged at Kandy; and a 'floral altar' enclosed in a post-and-rail fence executed in stone. One of the most impressive of his works is the 'circular relic-house', or *Wata-dagé*. At the centre of this strange building is a small brick *dagaba*, flanked by four seated Buddhas. These in turn are surrounded by a high brick wall mounted on a series of three circular terraces. The retaining walls of the two inner terraces are beautifully carved, one with a frieze of heraldic lions surmounted by a series of dancing dwarfs, the other with a decorative floral pattern. A flight of steps breaks the two inner terraces on the north and at their



Ananda, Buddha's favourite disciple, mourning for the master who attained Buddhahood, and so annihilation. The statue, 24 feet high, guards the figure of the sleeping Buddha beside the Gal-vihara



The reclining Buddha, carved out of living rock and 43 feet long, sleeps on untroubled and almost unscarred by the centuries that have rolled over him since Polonnarua was a thriving city



foot is a good specimen of a moonstone, those finely carved semicircular stone door-mats peculiar to Ceylon. Symbolic beasts follow each other in perpetual pursuit across the arc; a file of *hansa* or sacred geese, necks outstretched; then a procession of heavy-maned lions; then a row of spirited elephants; and finally a series of prancing horses.

Remains of many temples are scattered over a park-like space, now cleared of the dense jungle in which the ruins were submerged until their discovery a little over a hundred years ago. Polonnarua consists of oases of ruins surrounded by forest which wild elephant and spotted deer still inhabit, where wild boar and jungle-fowl are hunted, and through whose branches the white or golden flash of a bird of paradise can often be seen. One of the best preserved temples, the *Demala - maha - seye*, stands alone in a glade several miles from the palace, its outer walls of brick profusely decorated with Hindu gods, and a peculiar frieze of imps running round the big two-storied building. At one end a mighty, headless Buddha, over 40 feet high, presides, dignified in his decay, over the roofless hall. The walls are coated with *chunam* and covered with vivid paintings, some of which still survive; the predominant colours are orange and red, and an unusual blue-green tint.

The most spectacular of the Polonnarua monuments, perhaps, is the rock shrine or *Gal-vihara*, 'the cave of the spirits of knowledge', which lies in a small depression amid the crowding jungle. From a face of rock some 25 feet high, ancient sculptors scooped out a cave in which they chiselled out of solid rock a Buddha, perfect in its clarity of line and in the detail of its carving, seated on a decorated pedestal and beneath a stone canopy. On each side of the cave they hewed, out of the living rock, towering figures which stood bared to the

elements and outlined in grandeur against the sky. On one side is a seated Buddha; on the other is the giant reclining Buddha and, at his head, the upright figure of his favourite disciple Ananda, staring with folded arms through the surrounding trees. The Buddha, 43 feet long, lies with his head resting on a pillow, his right hand under his cheek, his gown falling in folds about him, in the attitude in which he attained Buddhahood. The massive face, its eyes closed, bears a memorable expression of strength and repose.

At the time of Buddhist festivals pilgrims from all parts of Ceylon gather to present prayers and offerings to the statue that their fathers carved. The older men still wear their hair long in the traditional fashion, twined into a bun at the nape of the neck and adorned with a tortoise-shell comb. The younger men crop their heads in European style, but they travel still in rough wagons, drawn by oxen, with detachable tops of plaited straw which are placed on the ground at night to serve as tents for the family. At such times it is easy to forget the eight centuries that have passed since Parakrama ruled over a prosperous city and came himself to worship at the shrine.

Polonnarua did not long survive the death of its greatest ruler. In 1219 fresh hordes from India swamped the island, and the leader of the invaders established himself as king. Lanka, the record laments, became 'like a house filled with fire and thieves'. Irrigation works were destroyed and rice-fields reclaimed by the quick-growing forest. In 1240 Polonnarua was abandoned to its last conqueror, the jungle. The Sinhalese shifted their capital from place to place until they came to a temporary rest at Cotta, near Colombo. Here the Portuguese found them, and a new era of European domination began.



The teacher who gave life to the dead cities of Ceylon: Buddha, the 'Enlightened One'

Photographs by Martin Hürimann



Stone baths adorned Anuradhapura, greatest of Ceylon's early capitals, founded in 437 B.C.



A late relief (5th-8th century A.D.) on the temple of Isurumuniya at Anuradhapura



At Polonnaruwa, Sinhalese capital from the 8th to the 13th century: the 'circular relic-house'—



— built to contain the cherished relic, Buddha's tooth, which reached Ceylon in A.D. 311



Figures of Buddha repeat themselves everywhere: seated within the 'circular relic-house'—



— or commanding a vista of huge columns and 'guard-stones' in the Jetawanarama temple



Wards of the Soviets

Cultural Expansion in Arctic Asia

by H. P. SMOLKA

Mr Cadbury's article on the Gold Coast in our last number afforded an example of British colonial administration at its best, striving cautiously and experimentally to bridge the gulf between primitive African and modern European culture. Similar problems are being tackled with characteristic self-confidence by the Soviet authorities in Arctic Asia, and the author of Forty Thousand against the Arctic shows enough of their achievements to indicate that each government could learn much from a study of the other's methods

THE Prince complained bitterly of the high tax for which they get nothing in return. And what could they get, these nomads, which would be of any value to them? They get no priests, no doctors, no roads, no communications of any kind. Unless we reckon the steamers that go up and down the Yenisei bringing them traders who make money out of them, and do their best to impoverish them by buying their furs and giving them new wants, which they formerly got on very well without. To say nothing of the traders having brought them spirits. The most they can see that the government has done for them, besides levying taxes, is to take some of the fishing rights from them which used to be theirs entirely.

Thus Fridtjof Nansen described Russia's colonizing activity among the natives of Siberia before the war. Conditions have greatly changed since then. I had an opportunity to observe this recently in the course of a three months' journey through northern Siberia.

Not that I am convinced of the black wickedness of the Tsarist and the Red holiness of the Soviet régime. I think the publicity-mindedness of a government has a stronger influence on the actual determination of its policy than have ethical considerations and humanitarian philosophies.

The fundamental difference prompting Soviet as opposed to Tsarist colonizers to adopt and pursue a more positive policy towards the natives of Siberia lies in the

fact that the present régime regards these stray tribes as a great asset to the economic development of the country, whereas their predecessors saw in them at best a curiosity or a nuisance and at worst an object for ruthless exploitation and speedy extinction.

Altogether there are about 150,000 natives left in a territory which is fifty times as large as Great Britain. They are split up into twenty-six different tribes, the largest of which numbers 60,000 and the smallest 300 souls. They were decimated by liquor, imported diseases and the cumulative effect, during the last 200 years, of life under inferior natural conditions and contact with 'superior white civilization'. We are hardly familiar with more than the mere names of these nations. Tunguses, Samoyeds and Yakuts are the best known; Goldis, Lamuts, Yuraks, Gellyaks, Yukagirs, Dolgans, Ostyaks and Chukchi the least. There are also a small number of Eskimos living on the most easterly projection of Asia, on the shores of the Behring Sea, where they form a link with the indigenous tribes of Alaska, northern Canada and Greenland.

Little is known of the ethnological origin of these native peoples. All except the Ostyaks closely resemble Mongol types: their faces, their high cheek-bones and the shape of their skulls. Yet recent blood-tests have revealed a closer affinity with the American Red Indians than with their southern neighbours. The Ostyak has unmistakably the eagle nose, the high fore-



Chukchi women: members of a primitive, nomadic race to whom, in their remote corner of north-east Siberia, nearly 4000 miles by air from Moscow, the Soviet authorities are introducing Western culture

head, the piercing eye and the long head of the Redskin.

Their languages vary greatly. Some of them have Finno-Ugrian traces, others a Mongol grammar but a Turki vocabulary. The great migrations and warlike expansions that have swept over Asia periodically in the past seem to have played havoc with these nations. Being weaker, they were apparently driven out into more and more inhospitable regions by others who occupied the best grazing-grounds. The taiga, the jungle-like northern forest and the tundra, Siberia's marshy steppe coasting the Arctic Ocean, have become their last refuge.

They were not even allowed to enjoy the full run of these territories. When the Cossacks came in the 17th century they 'conquered' the natives: musket against bow and arrow. Trade followed the flag, or (to use a modern metaphor fitting more

closely the social organization of that period) the fur-racketeers followed the gangster-gunmen. The tribal princes were kidnapped and held to ransom. Their subjects were allowed to visit them annually to persuade themselves that they were still in good health. Then they could buy their elders another lease of life by delivering so many squirrels, foxes, sables and ermines.

Progress did away with this system. The close of the 18th century saw the dawn of the 'rights of man' radiate even as far as dark Siberia. Commerce superseded robbery and blackmail. Perhaps also the natives got tired of paying such a heavy price for the lives of princes who were no longer of any use when they spent their lives as hostages in Cossack fortresses. So they got something else in return for their furs: spirits, a few industrial commodities.

Nansen saw the 'modern' procedure still

in operation. A trader would invite a native trapper to a drink. Then he would say: "For a bottle of this heavenly water you owe me twenty squirrels, or two foxes, or a sable skin". The native would say: "This is too much hunting for so little drinking". And the trader would give him more 'heavenly water', and with the native's 'sales resistance' coming down the price of vodka went further up.

The deal would close with the trapper promising double the number of pelts for double the number of bottles. Once he had promised, he kept his word. If the winter was bad and his reindeer were killed by the snow-storms, or if he fell ill and was unable to spend enough time on the hunt, he could not fulfil his contract and his son would take over his debts. "You were cheated, they made you drink—it is wrong of you to keep your word", the native might be told by some well-meaning person. And invariably the answer was: "That is my fault. I should have known better. If the trader is a scoundrel that is no reason for me to break my word." The native was obviously too

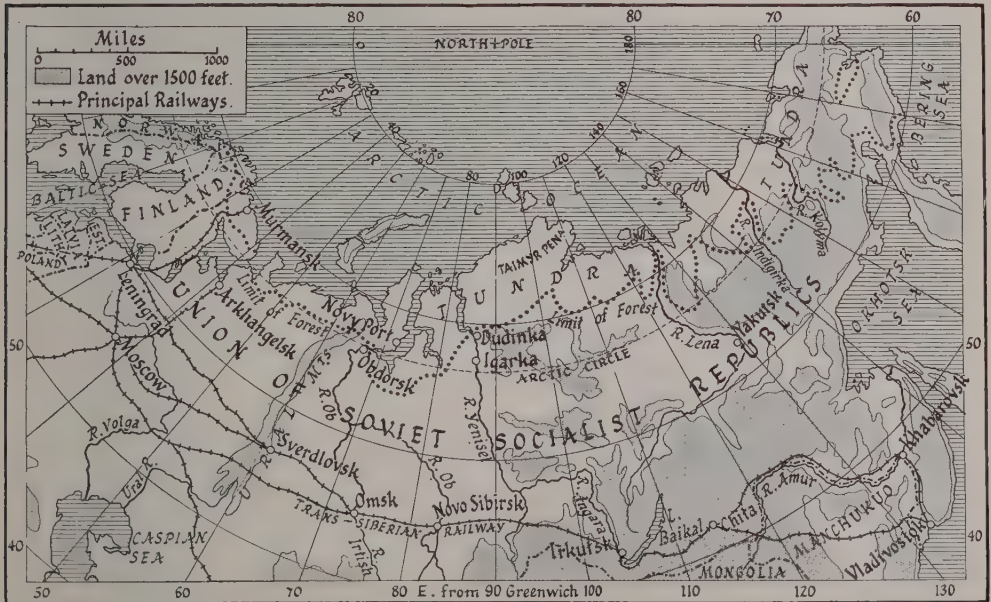
savage to be an equal business associate of the white man.

Such were his conditions of life on the southern fringe of his empire. On the northern frontiers Nature tightened still closer the pincers that choked the life-breath of these races.

The reindeer was and still is their primary basis of existence. They eat its flesh, clothe themselves in its skin and fur, make their tent-covers of its hide, and their knife-handles of its antlers. Reindeer harnessed in reindeer leather draw their sledges, made of wood bound together by thongs of reindeer veins and tendons.

The reindeer feeds off the moss of the tundra. In winter blizzards sweep ruthlessly over the open steppe. The tree-line affords protection, and the herds take refuge by going south. The reindeer must follow Nature's commands. The natives must follow the reindeer. Ice, heat, storm and swamp come first, the animal next; man trails helplessly behind. How could any culture worthy of the name develop out of such material conditions?

Yet Arctic Asia is not just a desolate part



Stanford, London.

of the world, incapable of development, a lost country void of hope. It is rich in minerals and metals, oil and salt. Its rivers, through the Polar Sea, link it to the world's oceans. The Soviet Government is anxious to remedy the geographical deficiency of Siberia, one of the richest and yet least accessible countries of the world, and thus to turn this back-yard of Asia into 'tomorrow's America'.

They are busy organizing transport down the rivers, building ports at their estuaries; they have already rendered the coast navigable for three months of the year with the help of ice-breakers, a chain of meteorological and radio stations, and scouting aeroplanes. They want to cut the fine Siberian timber and raft it downstream, saw it up at the port-towns and ship it to Europe in summer. They are sinking mines to get at the nickel and copper, the coal and oil, the gold and platinum which lie hidden underneath the ice. They dream of transpolar air services to link Europe and Asia with America across the Arctic. All this was impossible without wireless and aviation.

To discover a motive for their efforts to include the natives of the Arctic in this scheme, one need not unearth Lenin's thesis that every national minority in the Soviet Union should be regarded as the primary owner and trustee of the territory in which it lives. For these natives, through centuries of struggle with Nature, have become acclimatized and experienced in living, however primitively, in these regions. White pioneers, with all their technical superiority, can hardly ever become as efficient. The natives' knowledge of the country on the one hand; and on the other, the Europeans' knowledge of what it is worth and with what methods and instruments it can be bent to man's will and made to yield its treasures: that is an even bargain.

The Soviet Government has started by giving the Northern races a definite legal status. Trade with them is only permitted

to the State or to co-operative institutions. They are exempt from all taxes and from conscription. Minimum prices are fixed for their products and the prices for commodities supplied to them by the trading stations are determined by the State, so that they can afford all necessities of life. It is regarded as of lesser importance for the moment whether the scheme is a paying proposition, although the value of the fur trapped by the natives is high enough at world market prices to entitle them, in return, to quite a fair share in the country's industrial commodities and staple foodstuffs.

Autonomous national districts are established—at least on the map—according to the usual area travelled by each tribe, and a comprehensive right to the soil and its contents is given to them on paper as a guarantee for the future. They are all told about it whenever they come to the trading stations, their children are made conscious of it in the new schools. Native chieftains are already officiating in the soviets of some such autonomous regions.

New names are given, or, as the Soviet authorities insist, the true names recognized for these tribes. The Tunguses, for instance, never called themselves by that name. Their answer, when you asked them who and what they were, was "Evyenki". The Samoyeds called themselves "Nyentse", the Eskimo "Innuits", the Ostyaks "Keti", the Dolgans "Sakho". These words were always the equivalents in their respective languages of our words 'men', 'human beings' or 'people'. They had no consciousness of national entity. The names under which they were known to the Russians often had their roots in contemptuous or derisive descriptions given them by Russian traders; or they were transformations of names of similar tribes, mostly also with a satirical twist. Some of the tribes were called 'dirty ones', and the Samoyeds, for instance, strongly suspect that they were christened thus not only because of their alleged relationship to the



Another ward of the Soviets—a Dolgan of the Taimyr Peninsula—with his reindeer-hide tent

H. P. Smolka

Saam Lapps, but also because in Russian *samoyed* can be interpreted as meaning 'self-eaters'.

These rather academic distinctions (legal status and national labelling) completed, the Soviet Government had to approach the infinitely more difficult task of filling the theoretical frame with practical work of assistance to the Northern races. Two tasks were undertaken simultaneously: education of the young and reform of the commercial relationships between the State and the adults.

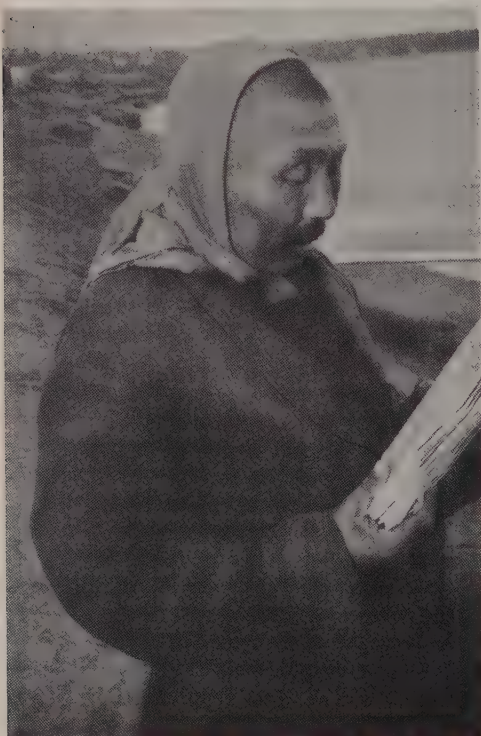
At the beginning, the fervour to convert them to civilization was too hasty. They took young boys and girls away to far-off towns, and made them live in houses and eat cooked meats. The victims of such

well-meaning attempts to raise their intellectual standard had slept in tents throughout the Arctic winter and had been brought up on raw meat and frozen fish. In Leningrad they caught pneumonia or died of indigestion because their stomachs had never known cabbage soup and *Bœuf Stroganoff*! Others languished miserably and died of tuberculosis and various infectious diseases; their bodies, having grown up in the germ-free atmosphere of the Arctic, contained no anti-toxins against the bacteria that thrive in towns and to which we ourselves are already immune.

A brake was put on this process a few years ago. Children are no longer taken away for education to Europe: schools are brought to them. The method now adopted is gradual. After passing through the tundra school, the most intelligent are sent on to some larger Siberian settlement for further instruction—to Igarka, to Dudinka, to Novyport or Obdorsk. There they learn history and geography, they begin to use their newly acquired knowledge of the alphabet, to read books in their own language and in Russian.

The curriculum of the elementary school, which contains technical instruction in the use of the rifle, fishing-net and rowing-boat, is continued and carried on to a higher level of efficiency. Everything is done to preserve the talents of the tundra for hunting and fishing, while the pupils become better acquainted with Soviet civilization and technical equipment. They are taught scientific methods of reindeer breeding and veterinary care; they learn to handle motor boats and build timber houses. In order to preserve and help them to develop their own culture as much time is devoted to the proper use of their own language as to Russian, which is regarded only as a kind of Esperanto. The best students are finally sent to the Institute of the Peoples of the North in Leningrad.

The Arctic natives never knew how to put words on paper and pass them on.



H. P. Smolka

Symbols of new life in the Arctic; a bundle of newspapers brought by aeroplane and handed over to a native Dolgan for delivery



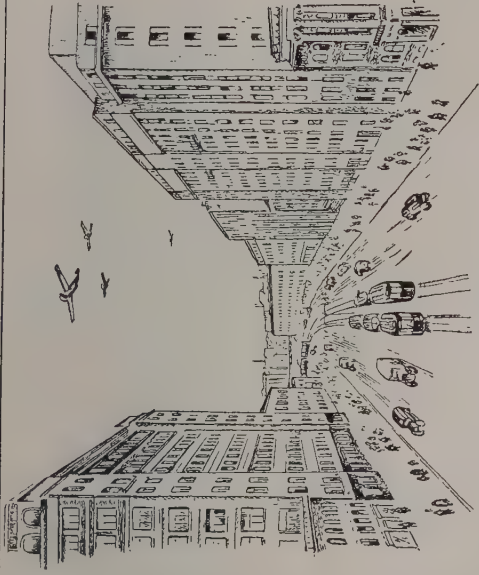
H. P. Smolka

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From the new elementary schools far away in the tundra, selected pupils pass to the larger settlements of northern Siberia, like Igarka, where they can fit themselves to lead their kinsfolk in the strange paths of learning

"This is where I come from." A girl from a distant tribe tells her colleagues at the Igarka school how she aims at becoming a veterinarian and an expert in reindeer-breeding, the immemorial occupation of her ancestors

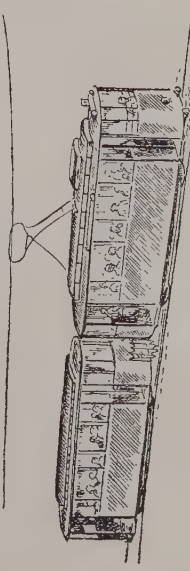


Moskwa.

Sowetji Umunupindun hэгditku gorot Moskwa. Moskwaду so kətə fəbrikal, zawodil, tatkicil, institutl.

Moskwaду ilanduk milliosalduk hөлөkə iləl bizərə.

Əril iləl fəbrikaldu, zawodildu hawalzara, tatkicildu, institutildu tatcara.



Tramwaj



1 Maj kapitalistil dunnəgildutin.

Kapitalisttildu dunnəldu hawamnil galəlduwər əgəsiwə gəzagətin.

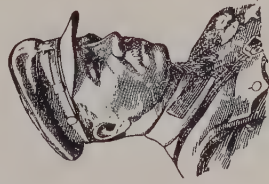
Təli nuğartin Ələkəsipti Maj tirganidun, urunənəl, tuliski juzəgətin.

Hulama armija.

Hulama armija hawalzaril armijatin.

Hulamala armijala umunə-də tirəxərilə, kulakila əwkil tinə.

Sowetjiwa Umunupinmən kapitalistil hakuzəra. Kapitalistil Sowetjiwa dunnəwə əsi ajawzəra. Nuğartin gələsərə, nuğargidutin dunnəgudin hawamnil rewolucijawa



These books describe, too, the wonders of Moscow, beyond the range of primitive imaginations; and, even less imaginable, the horrors of life in 'capitalist' countries; not to mention the heroic leaders of the Red Army

THE GLIDER



Planer

Min nonon hæl dægi nudun modu dætlælkændu
dægsidu hupkucæku

Mindu ajiḡu tugsa ucikkon
hæpkæmkæn,
Minu ajiḡna ucikla uwur.
Gun: — Nogi ajmakaḡ zawli!
Nogdi kiḡkimakaḡ hæpkænəm.
Ucikanzaw ilbæsnæ.
Ucikanzacakan tusaḡcin,
Dæḡælran ugæsjæki
Kuræḡækæn, diræḡækæn.

A fine, swift-running deer they caught for me,
One fit to tread the clouds . . .
On that fine deer
They put me.
They said:
'Tis well to hold the bridle with all thy might.'
I grasped and held the bridle with all my might.
At last they caused the mighty deer to move—
A mighty deer that jumped up and soared high,
Thundering, whistling, buzzing
In my ears.
The wind swept boldly off my paltry hat:
It would have shot, falcon-like, down and down,
But for my holding it back with my palm. . . .
Where I look down,
The earth was fair to see:
Enormous houses looked like tiny beads,
Green fields—
The size of little blankets, spread below—
The railroad stretched itself as thin as thread.
Bird-like I face the wind,
In noise I fly,
And while I flew, I gave a thought
To my deer Kotatchan, who would have stopped
and been behind, had he but tried to run. . . .
Space trodden in a year
By him, I leave behind
In one short day.
He's left behind, pasturing. . . .
While I love
And do enjoy a deer that treads
The air.
If that deer could be taught the proper way,
It would get to the Indigirka river in three days.
Eagle-like I soar: the deer that treads the air
Is mine.
I have become a Son
Of Clouds.

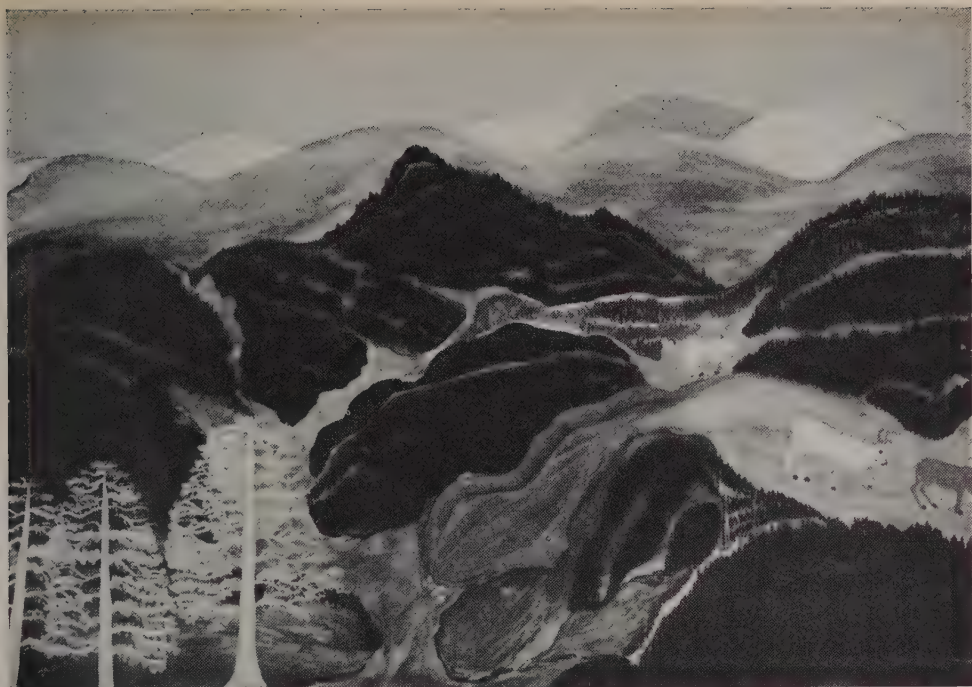
The Institute of the Peoples of the North encourages native literature. The first lines, with a translation, of a poem from Songs of the Indigirka, illustrated by its Lamut author

Russian scientists have created alphabets for them, as missionaries in Africa have done for some of the negro tribes. All these alphabets are based on the Latin, not the Russian script.

The Soviet authorities are very anxious to avoid being charged with 'Russifying' even the smallest national minority. Native newspapers in the Samoyed and Yakut languages are now appearing in the northern settlements, and some of the Russian dailies in these localities have one or two vernacular pages.

The Institute of the Peoples of the North in Leningrad is anxious for its students to produce literature and urges them to write

down their legends and sagas, describe their own lives, tell of their impressions of town life and their first reactions towards civilization. Works in rhyme and prose produced by these students are printed and sent to the North for the children in the Arctic schools to read. Translations of Pushkin, Tolstoy, Gorki and Turgeniev are also made at the Institute by students representing the various tribes. Of course there are also pamphlets containing the fundamental ideas underlying the Soviet conception of the State, society and economy, and others with useful hints for the improvement of the natives' economic life.



Painting, also, is fostered by the Institute. Only the technique is taught; native style, left to develop freely, displays great vigour, as in these pictures by Yakuts of their east Siberian homeland





H. P. Smolka

Missionaries from Russia—often Comsomol (Young Communist) girls—live on intimate terms with the native women, whom they instruct both in Communist doctrine and in the domestic arts

There are three faculties at the Institute: a Soviet section which comprises history, law, political education, and economics; a business section — agriculture, fishing, hunting with modern technical instruments, trade, fur-breeding and elements of zoology and botany generally, industrialization, etc.; and a pedagogical section.

This education is free—and more than free, for each student gets a stipend, including clothes, food, lodging, books, sports, theatres, cinemas, excursions and 25 roubles pocket money a month. When they write or translate for publication, royalties are paid to them at the usual rates. A small number come with their wives and some even with their children, who are thus educated at the Institute from the outset. Some get married during

their school period. In such cases they are given separate rooms. Marriage to Russians is discouraged, because it is hoped that they will go back to the North after their studies are completed. Two cases of inter-marriage have occurred, and the couples were asked to live outside the Institute. The general instruction is given in Russian, since the native languages represented by the 300 students are so different that some common language has to be used. But each race or tribe has also its own class in its mother tongue. There they are taught the proper use of their own language, and encouraged to make it richer and develop it with the help of the new alphabet.

The Institute fulfils a twofold purpose: practical scientific research (ethnography

and philology) and the education of native *cadres*. One of the students of the Institute, a Yukagir from the Kolyma region, Taëki Odulok, who has meanwhile qualified for a professorship, has written several books, one of which was published in English (*Snow People*, by Taëki Odulok. Methuen, 1934).

When I visited the summer camp of the Institute at Luga, near the Estonian border, I had an opportunity of getting more closely acquainted with the students. In one room I saw about thirty of them, boys and girls, standing in a circle, two by two, and practising steps to the command of a Russian teacher who stood in the centre and shouted continuously: "One, two, three; one, two, three; one, two, three". They were learning the elements of the fox-trot. Once they were familiar with them, the dancing-master told me, they would proceed one step further and

try it with piano music. I could not see why it was necessary for them to partake also of that blessing of our civilization, when they had pretty dances of their own. The dancing-master, however, explained it. "They live here for four years, and of course they go out frequently. We want them to get used to mixing freely with Europeans. Moreover, in the Northern towns that exist or will be built within a few years, they will move among Russians and other nationalities from all over the Union. Everybody wants to dance nowadays. We should not like our students, who ought to become self-confident leaders of their tribes, to feel shy or inferior in the company of Europeans merely because they cannot share in their social amusements. There is no need for them to carry the fox-trot into the tundra, and we tell them so. But why should they feel at a disadvantage with Europeans? All our



H. P. Smolka

Russian women in Siberia also come into close contact with the natives through the great variety of occupations that they undertake. Here a woman barber at Igarka is seen attending a Tungus

efforts are directed towards making them self-assured. We must do away with the old idea of their national inferiority, prevalent among themselves as well as among their Russian fellow-citizens."

There are rich and poor in the tundra as elsewhere in the world. Some men have herds up to 3000 reindeer, others only 25. Those with the many reindeer are likely to get richer because they can afford to take the sons of poor men into their service and augment their herds. The poorer are likely to lose the few animals they possess as soon as one or two fall ill. Once they are without reindeer they and their families have to offer their services to the rich, receiving as payment their food and shelter in the colder parts

of the rich man's tent, and five or six reindeer a year. This number is so small that it is hardly worth trying to breed more; also they have not the time to look after them properly, being compelled to devote all their energies towards watching their employer's herd. They usually slaughter them, therefore, and keep the frozen meat as a reserve from which to augment their own daily food-wages.

The Revolution did not halt at the fringe of the tundra. But the system adopted there by the Communists is not mere forcible expropriation. They try to persuade the poorer people in the tribe to decide that the richer have to give a number of reindeer for communal service. A resolution is taken in the tribal council that the rich man has to supply all the reindeer needed to carry the fur of the trappers to the trading centre and to carry back again the food for the whole tribe. (If he refuses he can be taken to court, but this has not happened so far.) Then a Comsomol (Young Communist) boy or girl, specially educated, is sent out to help the small reindeer-owners to organize themselves into a collective community.

Ten families are taken together. In winter they pitch their tents near each other. Some women bathe and watch all the children. Others go out and collect firewood for the whole unit. The men set their traps collectively and inspect them every fifth day according to a rota. In the second half of April all tribes in the Arctic move north. The ten families move collectively. They stop at the great rivers, where the women, old people and children remain. One tent with a few young men as reindeer-herdsmen follows the animals still further north in the search for food, while the rest devote themselves to fishing. Instead of each family laying out a small net, they are persuaded to try the larger riets, some a mile long, which the Russians give them.

Just as there are motor-tractor stations in agricultural regions of Russia from

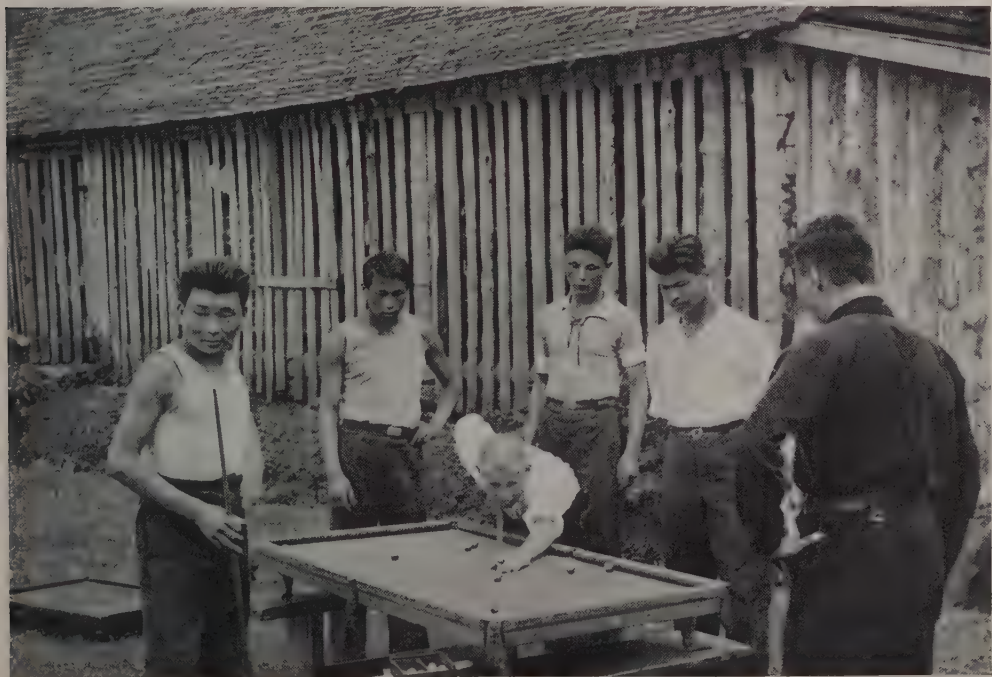


H. P. Smolka

There is two-way traffic on the cultural path: pioneers reach the outposts by air, and their best pupils set forth for the centres of higher study by the same route



A dancing-class at the Institute of the Peoples of the North. The élite of these peoples are initiated into Western social amusements so that they may not feel inferior to Europeans



Billiards at the Institute's summer camp

which machinery is lent to the collective farms, so centres for mechanization and rationalization of fishing and trapping are now being established in the Arctic. Motor boats, metal traps and large nets can be hired there. Three such stations were in operation already last summer; there are to be 13 by this year (if the plan is fulfilled), and 18 in 1938. These stations are at the same time equipped as 'cultural bases' with a staff of forty-eight employees, including doctors, veterinary surgeons, nurses, teachers, technical advisers, experts in cattle-breeding, and others.

The experiment is, I think, extraordinarily interesting. What the Soviet Government aims at is the raising of the natives' methods of production in order to increase their output and give them more security and freedom to develop their cultural life. If the Russians have their way, the natives will leave their children at the cultural bases at least during the winter months and life in the tundra will be transformed within one generation. There is no intention to make all of them settle on a permanent basis. This would be inconsistent with the natural economic requirements of the Arctic. But they

could—as the Soviets hope they will—become half settled in so far as they will recognize the cultural bases as their political, educational and economic centres, and also improve their living conditions with the help of modern technical equipment. 'Mechanized seminomads' would be the correct definition of this future state of the Arctic population.

The main principle applied in the campaign to 'raise the Arctic natives' is to get it done as far as possible by the natives themselves. They are asked to form nomadic soviets, a form of government which is presented to them as being only a short step forward from their own tribal councils. The resistance of the *shamans*, their medicine-men, is broken by young Communists who expose them to ridicule. They do it by giving them a taste of their own medicine. As soon as the tribes find out that doctors and veterinary surgeons can drive away the evil spirits that have crept into the bodies of men and reindeer, just as effectively as the *shaman*, they give their confidence to the new doctors. And soon they believe what the Red missionaries tell them: that the *shaman* is a parasite who thrives on their ignorance and superstition.



The shaman weaves his incantations over the sick. From a picture by a native artist in a Koryak reading-book

Nanda Devi

'The Blessed Goddess Nanda'

by N. E. ODELL

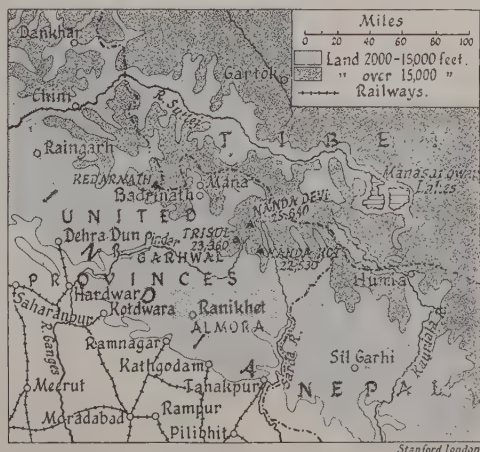
In attaining the summit of Nanda Devi, Mr Odell and Mr Tilman scaled the highest mountain that has yet been climbed, and one of the most difficult. The following article and its illustrations relate mainly to the events and the impressive surroundings of the climb itself: for a full account of the Anglo-American expedition which culminated in it, our readers are referred to Mr Tilman's recently published book The Ascent of Nanda Devi. Garhwal and its shrines, sacred to 200,000,000 Hindus, were described by him in The Geographical Magazine for July 1935

NANDA DEVI, rising 25,640 feet, is claimed to be the highest mountain in the British Empire in virtue of the fact that its base, unlike a few other rivals in altitude in the Himalaya, stands wholly in British territory. Many have been the aspirants to its honours, but its remarkable inaccessibility has held it for fifty years inviolate to the foot of man. Ringed around by a great 70-mile rampart of mountains, most of which are over 20,000 feet high, this sacred mountain of Nanda, wife of the third Person of the Hindu Triad, Siva, had until 1934 defied all attempts to reach her foot. Following many unsuccessful attempts on the part of notable mountaineers, E. E. Shipton and H. W. Tilman during that year forced a passage up the terrific gorge of the Rishi Ganga, by which the waters of the basin make their exit, and explored the remarkable cauldron of the so-called Inner Sanctuary. This exploit is well described and beautifully illustrated by these able mountaineers in their book *Nanda Devi*, which appeared last year.

Our Anglo-American party last summer consisted of eight members, equally divided internationally. The original objective was Sikkim in the Eastern Himalaya, which I had visited in 1924 *en route* to Mount Everest, and where I hoped to glean further information of a geological nature for the solution of certain research problems which I had in hand. But, being refused permission to visit that region, we turned our attention to the district of British Garhwal in the central

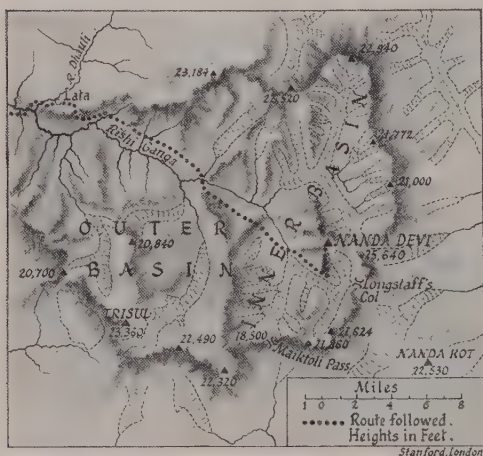
Himalaya. There we knew we had a magnificent alternative in what was reputed to be one of the most beautiful parts of the whole range: and not only a region as yet scientifically unexamined but one that held the lure of such a great unclimbed peak as Nanda Devi, if we could only reach her. We were well aware, moreover, that the difficulties of approach would be greatly enhanced owing to the necessity of our carrying out our operations during the rains of the monsoon season. The great gorges through which we must pass to gain the interior of the Nanda Devi basin might be impossibly flooded; and the known difficulties and obscurities of the way might be too much, if not for ourselves, at any rate for our porters.

Our first piece of good fortune consisted in the inclusion in our party of H. W.



Tilman, who from his experience in 1934 held the key to the intricacies of the upper gorge. He was willing to go to India ahead of the main party and secure a small group of Sherpa porters from the Darjeeling district for high-altitude work, and make other preparations and arrangements in advance. In addition he recruited 37 local Dotial coolies, from the hill districts of Kumaon and western Nepal, as well as 10 men from the mountain community of Mana, to carry for us, if possible, as far as our intended base-camp in the basin.

Our rendezvous was Ranikhet, the beautiful hill-station and military centre in Almora in the northern United Provinces, and on July 10 we departed thence in torrential rain on our long trek through the mountains. What delightful resorts these hill-stations are in fine weather, with their invigorating air and astounding views of the distant snows, is known to many people, but few who have never experienced it can realize the appalling dampness and penetrating humidity of a tropical hill-station in the rains; our British moisture cannot compare with it! For many days our route lay across a medley of forested mountain ridges and deep river valleys, and we had frequent opportunity of observing the ways, and indeed the friendliness, of a most attractive mountain people.



The Garhwali, although not strictly Mongoloid by race like his neighbour in Nepal, has nevertheless a number of characteristics that differentiate him from his kinsman of the Indian plains. A varied and vigorous past seems to have given him among other things a greater openmindedness and independence, and a cheerfulness withal not so evident in the lowlander of peninsular India. And in this country of Garhwal one has ample opportunity for comparison, for thousands of pilgrims pass to and fro annually on their lengthy pilgrimages from all over India to the sacred sources of the River Ganges in upper Garhwal. On our return journey, some of us made a point of visiting the shrine of the god Vishnu, at Badrinath, situated in a remote upper valley at 10,000 feet, and its presiding high priest, His Holiness the Rawal, evinced great interest in our 'pilgrimage' to the 'shrine' of Nanda and gave us a most hospitable reception. He had been good enough to send to our base-camp a most welcome and delicious present of fresh fruit and vegetables.

But the last contact with human culture had to be severed at the entrance to the great gorges which guard the approach to the mountain 'shrine' of our objective. The lower gorge having defeated a determined onslaught by W. W. Graham and his Swiss guides, the first aspirants to Nanda Devi honours, as long ago as 1883, it was necessary to make our way over rugged mountain-land, including a pass, high on the north side. This led us past a couple of 'kharaks', or alpine pastures, used by local sheep- and goat-herds: beautiful spots in themselves, and in one case so remarkably girt about with towering heights, that it had called forth from Tilman, on the occasion of his earlier reconnaissance with Shipton, the appropriate appellation, "a horizontal oasis in a vertical desert!"

The last 'oasis' gave out in amazing verticality along the sides of the middle gorge, over which we had to scramble in the faith that apparent impasses would



Behind the clouds lies Nanda Devi, the highest peak in the British Empire, defended by a great ring of mountains. This rampart is broken at one point, approachable by the valley of the Dhauli river, to whose steep sides cling the terraced fields of the Garhwali mountaineers

raphs by the author and other members of the expedition



Into the Dhauli river flows the Rishi, draining the Nanda Devi basin through the only crack in the rim; a torrent-filled channel so deep and precipitous as to be in many places impassable, at least to men carrying loads. The expedition therefore avoided the formidable lower Rishi gorge



Making a detour to the northward, the party crossed the outer mountain barrier, among towering heights that overhung alpine pastures, one of which (above) was dubbed 'a horizontal oasis in a vertical desert'. Beyond lay the middle Rishi gorge. The passage of its rugged flanks, high above the main stream, was complicated by side torrents rushing down minor canyons of their own



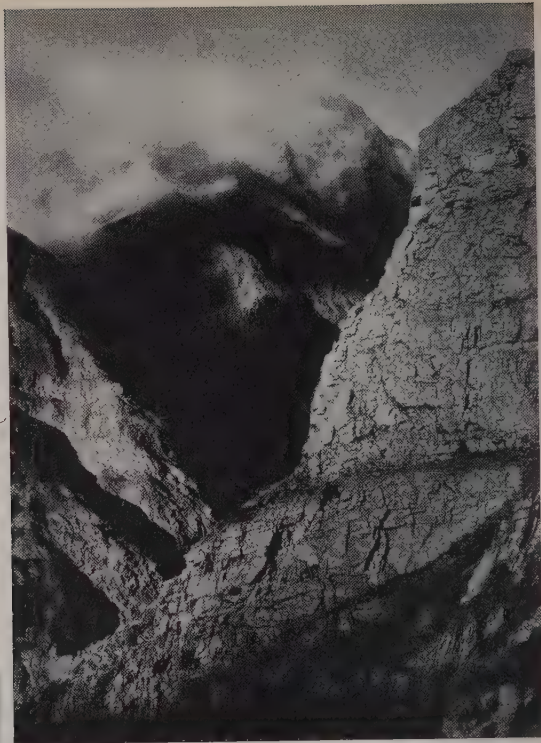


The upper Rishi gorge presented even more serious obstacles, and the only practicable camp site, about half-way up it, consisted of platforms excavated on ledges of the chasm



One section of the porters had refused to face the upper gorge, so that the rest were compelled to relay heavy loads in double journeys along the cliffs at a height of some 13,000 feet

'Pisgah' buttress, at the eastern end of the upper Rishi gorge, closes the entrance to the inner basin like a curtain, and almost turned back the climbers who first explored the 'Promised Land' in 1934

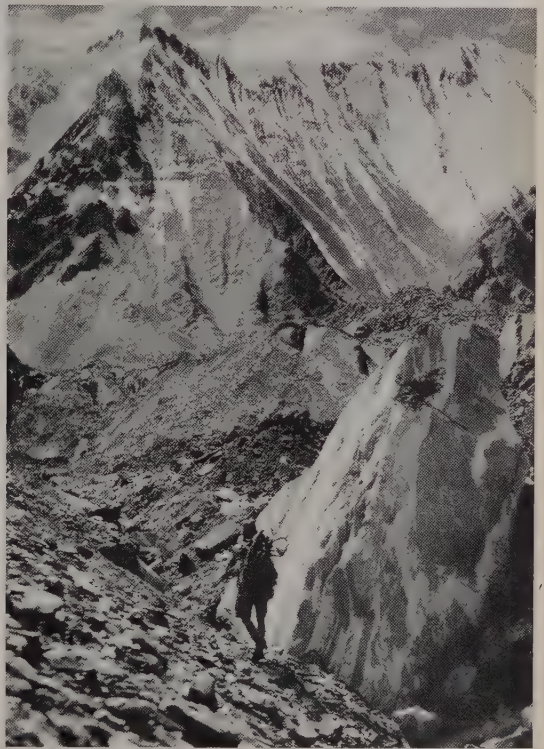


From the crest of Pisgah ridge the summit and south face of Nanda Devi, with the northern part of the inner basin, lay revealed. Behind were three weeks of marching, and the difficulties of the gorges overcome



Within the basin, surrounded by the lofty mountains of its rim, the party traversed flowery alpine meadows, where flocks of mountain sheep and goats graze in a natural sanctuary, soon to be officially preserved

Juniper branches from these meadows afforded useful firewood. Stores were relayed across them, and up the glacier that flows past the southern foot of Nanda Devi, to a lower base-camp on a shelf of moraine



not at some places cut off all further progress. At one obstacle, however, our Dotial coolies had altogether insufficient faith for our liking. This was where a large side torrent plunged down in a minor canyon to the main river, and necessitated so hazardous and unpleasant a crossing that 32 of the coolies refused to proceed and decided to return home. Encouraged, however, by means of a rope fixed by Tilman the remainder of our porters and ourselves negotiated the crossing and managed to send all our loads and equipment across on an improvised rope-way. Unfortunately for the homing Dotials the cash-box had already crossed the torrent and they had yet to be paid. Eventually two of their number, either more stout-hearted or money-minded than the rest, decided to brave the extremely unpleasant crossing and fetch the cash. We were sorry for them, as well as for ourselves, for to add to all our troubles it was pouring with characteristic monsoon rain.

Thence onward lay our chief potential and actual difficulties. The upper gorge by which the waters of the Rishi Ganga pour forth from the Nanda Devi basin had now to be tackled, and we tackled them carrying loads of 60 lb., which had to be relayed along the sides of a canyon built on the scale of the Grand Canyon of the Colorado River. At one place it was necessary to climb down a steep and smooth cliff in order to reach a remarkable bridge over the main canyon which was formed of immense boulders. While the somewhat delicate operations hereabouts were in progress, there was suddenly a loud crash up above, and down through the air hurtled a large load which, narrowly missing some of us, burst on the rocks and then disappeared in the canyon. This unfortunately turned out to be our oxygen apparatus (to be used, if necessary, clinically, and not as an aid in climbing) and a considerable quantity of our paraffin. The porter who was carrying the load had stumbled and damaged his leg, but for-

tunately managed to stop himself from following his load into the depths below. My geological activities were somewhat curtailed by the huge load to which I was anchored. Nevertheless, and in spite of the qualms of my companions, I managed to collect sufficient data for a continuous geological section through the region.

A week of difficult and strenuous work brought us at last within the basin itself at an altitude of about 14,000 feet. Here we found ourselves encamped upon extensive alpine meadows covered with many kinds of flowers including the blue poppy, gentian and edelweiss, etc. Surrounding us were the lofty mountains of the 'rim' of the basin, from which Nanda Devi itself rose supreme to towering heights. Grazing peacefully or scrambling on rocky ledges, unapproached and unmolested by man, were flocks of mountain sheep and goats, barhel and thar respectively. It is pleasing to think that this unique natural sanctuary will soon be established as a definite preserve by the Government of India.

We made our way over several miles of this delightful meadow-land, thankful in no small measure to have left the 'terrors' of the gorges behind. At 15,000 feet on August 4, we established a lower base-camp on a high shelf of moraine above the chief glacier (South-east Glacier) that sweeps by the southern foot of Nanda Devi. This camp looked out on a dreary waste of waning glacier, covered with debris, that seemed characteristic of the passive, if not definitely regressive state of the ice of many of these glaciers. When one bears in mind the evidence in the district of their former extension 50 and more miles further southward, how puny these ice-streams now appear!

Several more miles of toilsome moraine and a steep 'couloir' brought us at about 17,000 feet to our upper base-camp on the lowest southern slopes of the mountain. All the locally enlisted porters remaining were sent back, and before we could make



At this stage the attack on Nanda Devi itself began. From the upper base-camp at 17,000 feet the remaining locally enlisted porters were sent back, leaving the Sherpa porters from Darjeeling—



—and the climbers: (left to right) Messrs Tilman, Loomis, Graham Brown, Houston, Lloyd, Odell, Emmons, Carter

further progress a heavy snow-storm held us in our tents for two days. Our obvious route now lay up the great southern ridge of Nanda Devi, uncompromising though a great deal of the upper part of the mountain looked from this point. At a little over 19,000 feet Camp I was pitched on such an inadequate ledge that much quarrying had to be resorted to to provide

Camp II at about 20,000 feet, perched somewhat precariously on another rock-ledge below an overhang, our two remaining Sherpas were *hors de combat*, one through snow-blindness and the other on account of general debility. We felt it possible, and indeed probable, that a contributing factor to this debility in nearly every case might be the not inconsiderable difficulty



The moraine-covered South-east Glacier and the rim of the basin, from the upper base-camp established on the lowest southern slopes of Nanda Devi, which lies behind the photographer

sufficient space for the tents. From here one obtained an extensive and most impressive view over the great mountains composing a considerable part of the 'rim' of the Nanda Devi basin. Above us, though much fore-shortened, rose the upper crags of Nanda Devi itself, which dropped with terrific steepness through many thousands of feet to the head of a small glacier valley sculptured from the southern face of the mountain. It was at this camp that we were faced with what threatened to be a minor tragedy in that four of six Sherpa porters, though selected for work under high-altitude conditions, became indisposed on account of these very conditions, and were unable to proceed. At 266

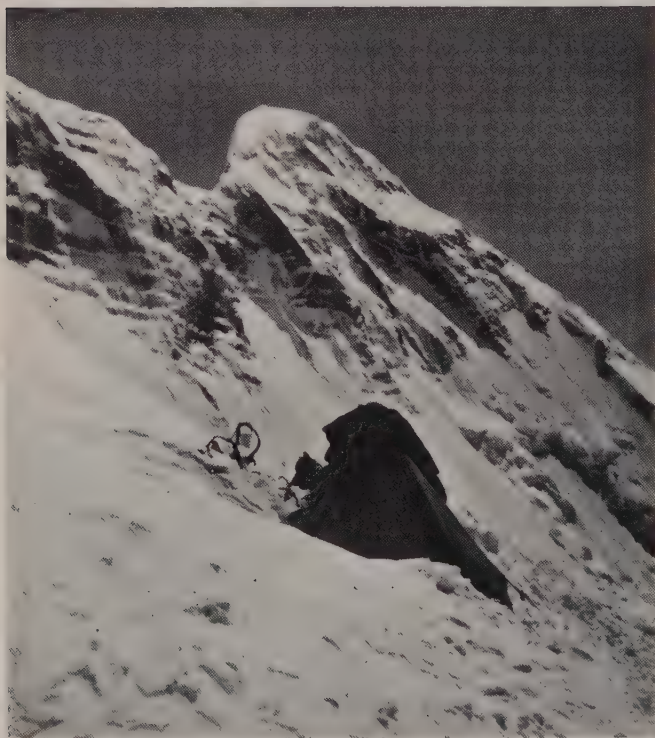
of the climbing. For our route in places involved technical difficulty of a high order, comparable to the harder and steeper climbs of the Alps, and we were at times reminded of the ascent of the Dent Blanche, near Zermatt, by one of its stiffer ridges. At 21,000 feet the angle eased and gave place to a snowy shoulder on which good sites were found for Camps III and IV.

At III a fierce blizzard, heralded by a display of 'Mock Sun', blew for two whole days and held us in our tents, threatening at times to uproot the latter and roll us and them down the mountain-side. Above IV the face steepened and it was only with the greatest difficulty that Houston and myself, who were selected to make the first



'At a little over 19,000 feet Camp I was pitched on such an inadequate ledge that much quarrying had to be resorted to to provide sufficient space for the tents.' Below it the crags of Nanda Devi fell sheer to the glacier valleys near the foot of the mountain. Here four of the Sherpa porters, though selected for work under such conditions, became too ill to climb further





On the way up to Camp II, which was perched on another rock-ledge about 1000 feet higher. Round the rim of the Nanda Devi basin monsoon clouds are blowing up

At Camp III (21,000 feet) the climbers were held up by a blizzard for two days. All the Sherpa porters were by now indisposed, the last two having been left marooned at the camp below

assault on the summit, could find a site for Camp V at 23,500 feet. Our reconnaissance next day over a magnificent ridge which provided all the sporting characters of a first-class climb, carried us to the foot of the final crags below the summit. But that night at Camp V Houston was taken violently ill, and next morning was so weak that I was obliged to signal down to IV, 2000 feet below, for help. I shouted down the SOS signal as a preliminary, and then "Charlie is ill". This was unfortunately heard as "Charlie is killed", which not unnaturally created consternation in the camp. Preparations were made at once to come up to my assistance, and after a hard climb Tilman and Lloyd arrived in the afternoon fearing the worst. Houston, however, soon relieved their minds, not only by being still alive, but by being ready to make the attempt of descending from Camp V to enable someone else to take his place in a further assault on the summit. All three of us then set about assisting the weak and disappointed Houston down the steep ice-slopes to Camp IV, where in a day or two he had fortunately recovered from what seemed uncommonly like an attack of ptomaine poisoning.

Tilman returned with me to Camp V, and the following day was spent in twice relaying loads under appalling snow conditions to 24,000 feet, where we found an opportune snowy shelf for Camp VI. Our evening there will long be memorable for one of the most magnificent sunset scenes we had been lucky enough to witness at high altitudes; dark masses of threatening cloud lay among the distant peaks, in strong contrast to the vivid scarlet, gold, and greenish tints of the western sky, giving us some fears for the weather of the morrow. A cold night, however, with a minimum temperature of 12° F., broke to a promising morning, and we congratulated ourselves at setting out from our tent as early as 6.15 A.M.: at high altitudes early starting is the virtue and practice of few!

We quickly made our way over the first part of the narrow ridge above Camp VI, which had been traversed by Houston and me three days previously. Above it, as on the former occasion, the snow was just as vilely soft, and we sank in thigh- and sometimes waist-deep. By 8.30 A.M. the sun had struck the slope up which we were toiling and made it even worse. We took turns at kicking steps, and as we approached 25,000 feet, we found it best to take about eight respirations per step, and halt for a rest every ten or twenty steps. A broken rock-face and an extremely steep snow-gully eventually led over an exceptionally rotten cornice to easier slopes leading to the summit. Thinking our difficulties were over, and looking round for a suitable halting-place, we were startled by a sharp report. A sudden break had occurred in the snow surface on which we were standing, along the very line of our feet, and the whole mass avalanched off and poured with a roar down the gully up which we had just climbed. We had, however, little inclination to contemplate too deeply this remarkably impressive occurrence, and turned our attention to the final snow-slopes leading to the summit of Nanda Devi. These were quickly covered, and at three o'clock we had accomplished what, under the generally adverse circumstances and contingencies, we had scarcely believed possible: we stood on the culminating point of British India.

As we arrived there was a low internal rumble and the snow reverberated beneath our feet: a settlement of the snow dome on which we stood, giving the effect of a minor earthquake, had apparently taken place. The air-temperature was determined as 19° F., but as it was sunny and the air still it did not seem cold.

Looking out from our high position everything seemed very distant. Round about most of the peaks on the 'rim' of the basin, and from the valleys beyond, were rising beautiful columns and towering



Two views from Camp III. (Above) Nanda Kot (22,300 feet), climbed by a Japanese party in the autumn of the same year (1936) and, in the centre, Longstaff's Col from which he got his first view of the Nanda Devi basin in 1905. (Below) The South Glacier and the Maiktoli pass by which the 1934 reconnaissance party made their exit from the basin





Evening over Nanda Kot from Camp IV (about 21,700 feet) established on the seventeenth day of the climb



A telephotograph of the south face of Nanda Devi (cf. drawing opposite) showing the great ridge by which the summit was attained, and the sites of the camps from about 20,000 feet upwards. Two climbers lived for 16 days above that elevation. All seven reached Camp III, to which 25 loads weighing up to 40 pounds each were raised



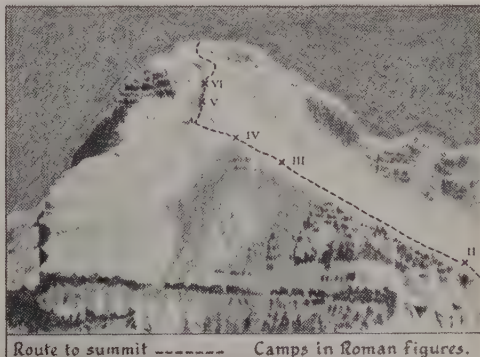
Looking eastwards, along the route followed by the expedition, from above Camp VI (about 24,000 feet) on the way to the summit. Far below stretches the line of the Rishi gorge, backed by monsoon clouds. At this altitude the heights above the 'horizontal oasis' (p. 260), appearing to block the gorge in the middle distance, seem quite insignificant

masses of cumulus clouds. To the northward was a cloud-clear avenue, and the elevated plateau of Tibet was indicated by its characteristically blue atmosphere above a brownish landscape. To the southward the top of Trisul, 23,360 feet, on which Dr T. G. Longstaff in 1907 had made his record ascent, just appeared above the heavy vapours. Neither the local conditions nor yet the summer-like clouds on the horizon suggested the occurrence on that very day of the tremendous rainfall of 19 inches at Mussoorie to the westward, and elsewhere in the neighbourhood, causing huge floods and considerable loss of life amongst the native villagers.

Our observations, and a round of photographs, occupied three-quarters of an hour on the summit and, collecting geological specimens from the highest outcrops of rock, we began our descent by the same route. Incidentally, the formations of which Nanda Devi is predominantly composed are sandstones and mudstones, once laid down in the ancient Tethys Sea, which occupied Central Asia, and now altered and disrupted to quartzites and schists, that bear evidence of the immense forces that have upthrust the main chain of the Himalaya. Although great care was necessary in descending the steep soft snow, we knew that the avalanche would have swept clear the more treacherous parts and rendered them safer than on our ascent. Finding one or two detours round awkward stretches possible, we quickly made our way down, and in spite of the rather exhausting deep snow were able to make sufficient pace to be back at our camp (VI) by 5.45. After a refreshing drink of tea, for which we always had a mad craving on these occasions, and an ample ration of pemmican, we turned in early.

The following day, in bitterly cold though fine conditions, we continued our long descent, past the remains of Camp V, and rejoined our awaiting companions at IV. The vacating of the lower camps was completed in often appalling condi-

tions of weather and snow, and we were a thankful and contented party that eventually reunited at the base camp. During our long trek back to Ranikhet we experienced the last effects of what must be a record monsoon both for length and intensity, satisfied that in spite of it we had reached our objective and in addition accomplished a measure of scientific investigation.



Route to summit ----- Camps in Roman figures.

It may be of interest to consider a few of the deductions that can be drawn from the success of this private expedition. First, it was a small one run on very economical lines: from which it may be inferred that the immense organization and extravagance of some recent British and Continental expeditions to Everest, Nanga Parbat and the Karakoram Himalaya, etc., are quite unnecessary to attain even the highest summits in the world. In any case, such huge expeditions have an undesirable, if not a bad effect upon the people of the countries through which they pass.

Nor is it necessary to have immense numbers of porters, or perhaps porters at all, as in our case, on the actual mountain itself, provided the European members of the expedition work together as a team, and are prepared to work hard.

Furthermore, it has not been found among climbers that extreme youth is best, or has the stamina and endurance for



At three o'clock on the twenty-second day of the climb—August 29, 1936—Messrs Odell and Tilman reached the summit of Nanda Devi at 25,640 feet

climbing at the highest altitudes. With the evidence of Norton and Mallory and others on Everest, as well as what has long been known in alpine climbing generally, and indeed in the Polar regions, it is no new thing to find that somewhere between the ages of thirty-five and forty-five or even fifty, the mountaineer is most probably at his best for exacting expeditionary work. Those responsible for choosing the personnel of big expeditions cannot afford to disregard, as they some-

times appear to have done recently, this fundamental truth.

Lastly it is important to remember that in remote regions where little is known of the geology, botany or even zoology, the opportunity for useful scientific work should not be missed through over-concentration on a single objective. Through lack of foresight in this respect on the part of the organizers of some recent expeditions unique opportunities have at times been wasted.

In Famous Gardens. I.

Cactuses in Monaco

Photographs by André Diènes

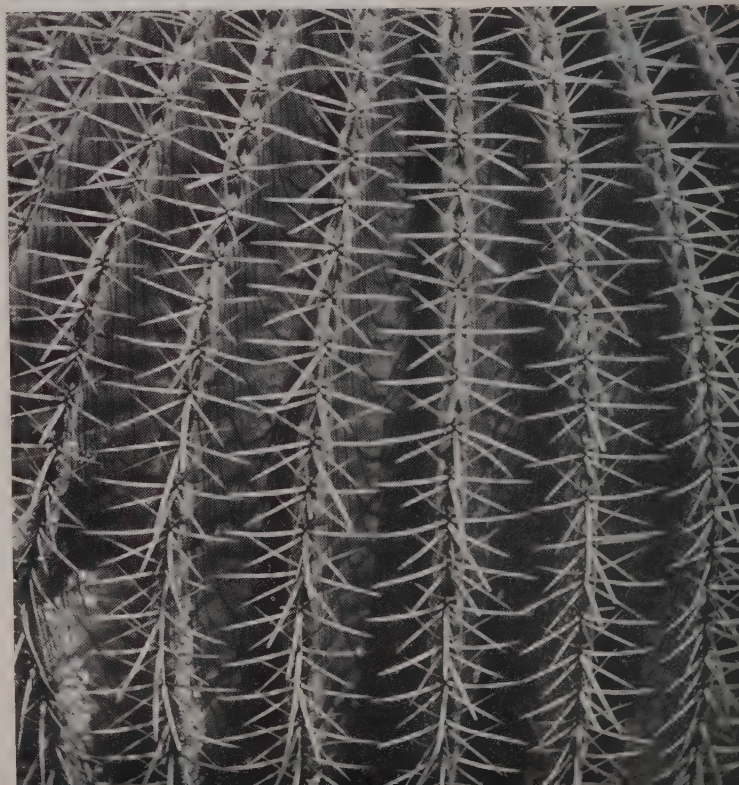


With a magnificent view over the port of Monaco towards Monte Carlo and, beyond, to Cap Martin, is the famous cliff-garden—the 'Jardin Exotique'. Laid out in 1912, these gardens are filled with rare plants; especially remarkable are the cactuses, of which the gardens boast some 18,000 examples—of 3500 different species. 'Cactuses' (the Greek name was applied by the Swedish botanist Linnaeus to the group of succulent plants now embraced by the order Cactaceae) belong almost entirely to the New World, though certain species have long been distributed on the shores of the Mediterranean and elsewhere



(Right, opposite) Perhaps the best-known genus of cactus is the *Opuntia* group, to which the familiar prickly pear belongs. They are fleshy shrubs, composed of separate elliptical joints; they bear yellowish flowers succeeded by pear-shaped fruits. This is the *Opuntia microdasys*, a native of Mexico

(Above) There are several different kinds of plants in this picture. The round cactuses in the foreground are Mexican, belonging to the *Echinocactus* family. The striped pillars are a species of *Cereus*, from Central and Southern America. The smooth pillars on the right are *Euphorbia*, from Africa, not related to the true cactus. (Right) Close-up of an *Echinocactus*. The cactus' swollen stems serve as water-stores. This, and the reduction of leaves to spines to prevent excessive transpiration, are adaptations to desert conditions





The elongated limbs of another Cereus. This family numbers over 100 varieties, some reaching a height of 60 feet in the deserts of New Mexico



Rosettes of a species of Aeonium (belonging to the same family as the familiar wild rock-plant, the stonecrop). These are natives of the Canary Islands and Madeira

Guadalcanal and Malaita

Native Life in the Solomon Islands. I.

by H. IAN HOGBIN

Australia is developing its own school of anthropologists, whose chief hunting-ground outside their continent is the archipelago to the north-east. Dr Hogbin, one of this enterprising company, has made a profound study of native life in the Solomon Islands, sharing the hardships and dangers inseparable from primitive existence. Two articles barely suffice him to record the major characteristics of that existence, in which the thoughtful will find many points of comparison with our own

DISCOVERY OF THE SOLOMON ISLANDS

THE story of the discovery of the Solomon Islands reads like a romance. Despite the fact that they were the first islands in the South Pacific Ocean to be seen by Europeans, for exactly two hundred years they were, quite literally, lost. Expeditions set out in search of them, and when at last they were found again, their discoverer did not recognise them. He gave them a new name, and on the map which he published in the account of his voyages the Solomons were placed elsewhere, with the remark alongside that their existence was extremely doubtful. Long before the coasts of Australia were visited by Dutch navigators the Solomons had been fairly accurately charted—and then they disappeared. All this was due to the absence of reliable chronometers, which were not invented until the 18th century. In consequence, although latitude could always be ascertained, longitude was largely a matter of guesswork.

In November 1567 two ships under the command of Alvaro de Mendaña set sail from Callao in Peru to discover the great south land which geographers of the day said must necessarily exist to preserve the balance of the earth. During the following February the first land was seen, low-lying coral islands, which were named Candelaria, from having been seen on Candlemas eve. The present name for these islands is Ontong Java, though a reef some miles to the south-west is still called Candelaria.

Shortly afterwards the not far distant island of Ysabel, of the Solomons proper, was discovered at a place Mendaña called Estrella Bay—Bay of the Star—because he imagined himself to have been guided thither by a star, as were the Wise Men of the East long ago when they set out to find the new-born Son of God. The island he named Ysabel, after his wife.

The ships remained in the Solomons for six months, during which time most of the southern islands were discovered. Most of them received melodious Spanish names which still survive on charts, though





All photographs by H. Ian Hogbin

On the beach, Ciudadcanal: in the distant mountains live the 'bushi' people of the island



The 'salt-water' people inhabit the coastal plain, with its dense jungle and many streams



The houses of the salt-water people of Guadalcanal are built of long timbers lashed together without nails and thatched. Each house is owned by a single family and shared by all its members

The bush people of the island of Malaita live quite differently. Husbands and wives dwell apart and no woman may enter a man's house. These are women's houses, with apse-like kitchens at one end

locally native names are more usually employed. The island of Malaita, spelt also Malayta and Malanta, which Mendaña did not visit, received its appellation as the result of a mistake. The native word is Mala, and Mala-ita means Mala-over-there. It is supposed that he asked Ysabel natives what was this land, and that he accepted their reply as the native name. Guadalcanal was called after a village in Spain.

Mendaña's account of his discoveries so fired the imagination of those at home that they came to be known as the islands of King Solomon. Everyone believed that they were immensely rich, though not one ounce of gold had been seen by the party. Mendaña himself was eager to establish a colony. In 1595 he at last received a commission from Philip of Spain and again set sail from Peru, this time with colonists and their families. Towards the end of the year the ships reached Santa Cruz, two hundred miles east of the Solomons, and a settlement was founded at the head of a bay to which the name of Graciosa was given. It is doubtful if permanent settlement at such a place could ever have been a success, but troubles quickly arose within the party itself, sickness broke out, there were brushes with the natives, and finally Mendaña himself died. The colony was therefore abandoned, and the ships set sail westwards, still in search of the Solomons. For two days they kept on, and it is almost incredible that land was not sighted, for all the large islands are high and visible from far off. However, plans were changed, and it was decided to make for the Philippines. Even then for days the Solomons must have been only just below the horizon.

Some years later the pilot of this expedition, Pedro Fernandez de Quiros, set out on a further attempt to find the southern continent. Instead he found the New Hebrides Islands, to the largest of which he gave what must be one of the longest names on the map, *Australia del Espiritu*

Santo, nowadays generally shortened down to Santo.

Then in 1616 and 1643 Ontong Java was again seen, both times by Dutch navigators. Tasman gave the atoll its present name in the latter year.

Not until 1767, two hundred years after Mendaña's visit, were the Solomons again seen, on this occasion by an Englishman, Carteret. He did not land, but in the following year Bougainville visited the three northern islands of the group, Choiseul, Bougainville and Buka. The last was called after what the natives said to him. It means, "Go away." In 1769 another Frenchman, De Surville, called at Ysabel and Malaita, where some of his men were killed. Further discoveries were made by Shortland (1788), Hunter (1791), Edwards (1791), D'Entrecasteaux (1792), Butler (1801) and Durville (1838).

EARLY HISTORY

By this time whalers and traders in *bêche-de-mer*, turtle-shell and sandalwood were making visits to the islands. Not a few of these were massacred by the natives. Missionary activities began in 1845, but the leader of the first mission, Bishop Epalle, was murdered. After several others had died or been killed, the remainder of the party withdrew. Other attempts some years later were more successful, though a number of missionaries have been murdered.

Certainly as early as 1860, and possibly even before, a few Europeans were living in the islands, and soon after this date kidnapping natives for work on Australian plantations began. This was soon stopped by British men-of-war, but for many years natives continued to be taken to Australia to work, though of their own free will. Recruiting ceased in 1903.

In 1893 a British Protectorate was established, and a Resident Commissioner was appointed soon after. Ever since, the Solomons have been a part of the Western Pacific Commission, administered, through

a Resident Commissioner, from Fiji. Tulagi, a small island off the coast of the larger central island of Florida (local name, Nggela), was selected as the site for the capital. Subsequently Government stations were also established on all the more important islands, that at Rarasu, Malaita, in 1909, and that at Aola, Guadalcanal, in 1914.

At the time of the declaration of the Protectorate planting operations had scarcely begun, but from then on they continued apace, as people considered, not altogether correctly as it turned out, that the islands were eminently suited to the cultivation of the coconut palm. The most important organization at present is Lever's Pacific Plantations, Limited. Apart from copra, that is, baked coconut, the only important exports are ivory nuts and certain shells, both products being utilized for the manufacture of buttons.

PHYSIOGRAPHY, CLIMATE, FAUNA

The total area of the Protectorate is 11,000 square miles, the three largest islands being Guadalcanal, Malaita and Ysabel, each roughly 2000 square miles. The archipelago consists of a double chain of mountainous islands, which are in fact simply the peaks of a submerged range of mountains extending from New Guinea, through the New Hebrides, far into the Pacific. The highest peak in Guadalcanal, Popomanasiu, is over 8000 feet. Earthquakes are not infrequent, that of 1930 being particularly disastrous. The climate is tropical—the latitude of Tulagi is nine degrees south—and the rainfall, though there are marked variations, is everywhere heavy. During the six months that the writer spent in Guadalcanal 120 inches fell, on one occasion 10 inches being recorded in four hours. As a result the islands are extremely dissected and thickly clothed with jungle. Several of the rivers carry a fair volume of water.

The climate of the islands cannot be described as healthy either for natives or

Europeans. Malaria is universal, and as well many native and introduced diseases are prevalent.

The only large mammals are the pig and the native wild dog, though European dogs have almost exterminated the latter. It is said that in former days they hunted in packs and even killed men. In Guadalcanal two species of enormous rats are found, as large as rabbits. Small rats are also common. The marsupial cuscus is found, and many species of bats. Birds are plentiful, including eagles, hawks, ospreys, pigeons, cockatoos and parrots. The most curious bird is the megapode. The size of a pigeon, it lays eggs as large as a duck's. These are buried in the sand and left to hatch out by the heat of the ground. In Guadalcanal the natives keep patches of sand clear for the birds, and then dig up the eggs. Crocodiles are common enough, and besides making off with pigs they occasionally seize human beings. Snakes are to be seen at all times, and many of them are highly venomous, though cases of snake-bite are rare. A frog weighing two and a half pounds frequents the rivers of some of the islands.

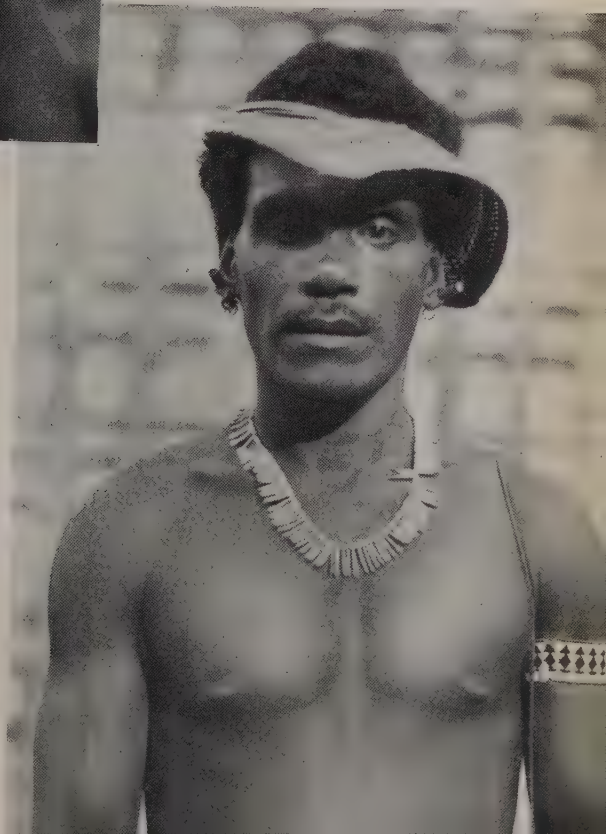
NATIVES OF THE SOLOMONS

Except for the inhabitants of a few outlying islands the natives are of the type known as Melanesians, though they vary in colour from jet black in the west to light brown with chestnut or straw-coloured hair in the east. As the photographs show, they are by no means an uncomely people. Physically strong, they have nevertheless been unable to withstand the onslaught of introduced diseases, and in some islands they have perished altogether. In the large islands signs of recovery are to be observed, but in all probability most of the smaller islands will soon be empty. The total native population is 93,000, of whom 43,000 are concentrated in Malaita. On this island, therefore, the future of the whole group largely depends.

An enormous number of languages are



The natives of the Solomon Islands are Melanesians, varying in colour from jet black to light brown. 'Physically strong, they have nevertheless been unable to withstand the onslaught of introduced diseases.' A Malaita bushman



The Guadalcanal salt-water people (who are believed to have come to the islands later than the bush people) live largely by fishing and it is no uncommon sight to see them wearing eye-shades to provide protection against glare when so engaged

spoken. On Malaita alone eighteen have been recorded. Pidgin English is in use as a lingua franca.

At one time the natives were intensely fierce and warlike, and often cannibals. They are all now under control, though as late as 1927 two government officials and a dozen native police were murdered at Sinaranggo, Malaita.

I shall now confine myself to a description of Guadalcanal and Malaita, where I lived with the natives during 1933.

On these two islands two distinct populations live side by side, known respectively as the bush and salt-water peoples. It is presumed that the latter are late arrivals, and that they everywhere tried to gain a footing at the expense of those already in possession. In Guadalcanal a plain varying in width from a few hundred yards to several miles extends all along the north coast. Here the salt-water people were able to obtain complete possession, driving their foes into the rugged mountain country. In Malaita they were not so successful, and, except in a few small areas, they never managed to settle on the mainland. Instead they had to be content with the tiny islands within the lagoons enclosed by barrier reefs which run for some distance along the east and west coasts. (There are no barrier reefs off Guadalcanal, and hence no lagoons.) These minute islands they had to fortify against storm and tide by building up seawalls of coral boulders. Within these walls the houses are packed together so closely that it is impossible to walk between them. I spent half my time with a salt-water tribe of Guadalcanal at a place called Longgu, and half with a bush tribe in north Malaita.

GUADALCANAL VILLAGES

The salt-water people of Guadalcanal live in hamlets of about ten houses each. A number of hamlets are often grouped together, a couple of hundred yards separating each one from its neighbour, to

form a village. The village of Longgu consists of about a dozen hamlets straggling along two or three miles of coast. They are in some cases separated by dense tropical jungle pierced here and there by tracks, and in others by streams, which after a heavy downpour are apt to become so flooded that it is impossible to wade or swim across. A few miles inland is picturesque Nangali, built on two sides of a meandering stream.

The houses, owned by individual families, are built of long sticks or bamboos laid horizontally against a heavy framework. They are thatched with dried leaf from the ivory nut palm, a species of sago peculiar to the Solomons. Inside they are very clean, though formerly the owners, their pigs and their dogs all slept together. Each member of the family has his own bed-place, a couple of mats laid on the ground with four logs along the sides. Between each bed is a fireplace to provide warmth, for the mountains inland cause a cold land-breeze to spring up every night at about ten o'clock. In the corner is the fireplace for cooking, with a pile of stones alongside for use when an oven is built. In Guadalcanal most of the cooking is done in ovens made of heated stones, but in Malaita the natives prefer to steam their food, using bamboos for the purpose. Above the fireplace is a rack for storing utensils, which include food bowls often four feet across and delicately carved.

MALAITA SETTLEMENTS

In north Malaita the bush people live quite differently. Here there are no villages, but only tiny settlements sometimes one family to each. The most interesting feature of Malaita family life is that husband and wife do not share a common dwelling; always there is one house for the man and one for the wife and children. Further, no woman may so much as enter a man's house. Generally a family of brothers share a house, the houses for their wives being built round about, but a

hundred yards or so away. The men's houses are still very solidly built, and have an encircling stone wall, a relic of the days when human life was held cheaper than it is today. Often there is a verandah where visitors can sit and talk, and always a wooden gong stands outside. Natives can still send all kinds of messages on these gongs. Women's houses generally have an apse-like lean-to at one end. This serves as a kitchen and dining-room, in which the whole family gathers for a more or less formal evening meal.

Pigs, a most important source of wealth and a valuable addition to a mainly vegetarian diet, are sometimes kept in sties and sometimes allowed to run wild. Often a family has one special pig as a pet, and in Longgu one man used to take his pig out for walks, tying a string to one of

its legs. The children, and even the women, may be heard weeping bitterly when a favourite pig has to be killed.

FAMILY LIFE

The natives of Guadalcanal have what is known as a matrilineal organization. That is to say a person belongs to the group not of his father but of his mother. He also inherits the property of his mother's brother, that of his father passing to his cousin, his father's sister's son. Nevertheless, a strong attachment binds a father to his child, and even before it can walk one sees him proudly nursing it and playing with it. Once it is out of infancy it becomes the father's constant companion, helping him with his work, or pretending to, and being carried about from place to place on his back or shoulders. It is no



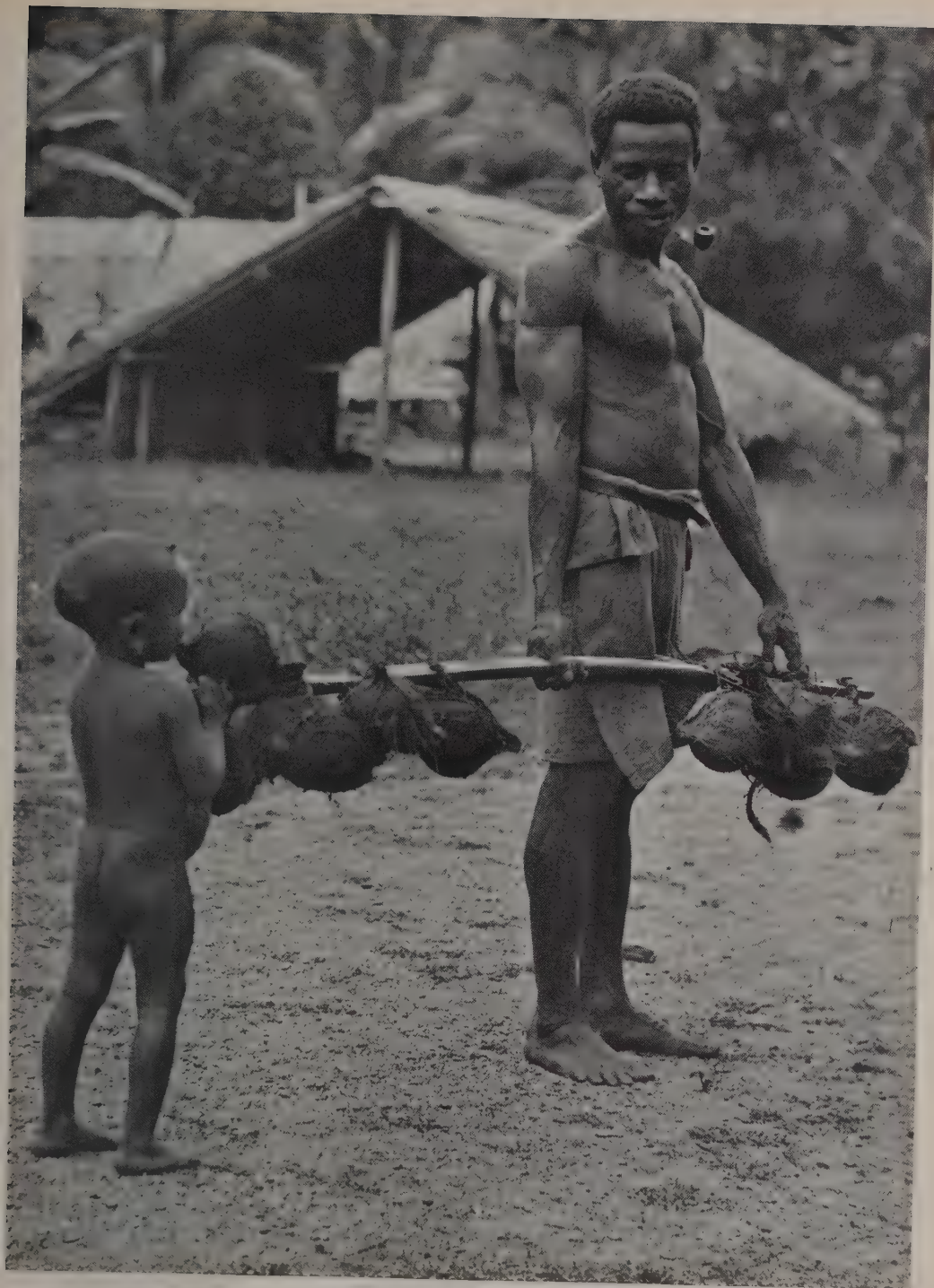
The men of Guadalcanal take an unusual interest in babies. A father may often be seen nursing an infant for hours, or helping its mother to bathe it



In Guadalcanal boys are their fathers' constant companions from an early age, accompanying them to work and being taught by them the arts of life. Learning to make fire



The son of a district headman (an ex-policeman) in Malaita knows where to seek refuge when assailed with doubts about the harmlessness of the white man and his camera



Lending father a hand. (Guadalcanal)



Girls are expected to look after younger children, and have little time for play. Here an eleven-year-old nurse is explaining how to toughen pandanus leaves, of which mats are made

uncommon sight to see a husky native crooning a lullaby to his baby son, or perhaps helping his wife to bathe him, pouring water from a bamboo over his head while the mother rubs away the dirt. Children, although they do have games of their own, seem to be generally content to play with their parents or help them at their work. The Guadalcanal family is thus a very happy unit. In the cool of the evening one sees them sitting outside the house or setting off in a body to visit some relative. Despite the fact that the child has to associate himself in many activities with his mother's brother, whose heir he is, his education is practically entirely in the hands of his parents. Fathers have little to do with the education

of their daughters, who are taught household crafts and other tasks by their mothers.

The Malaita family is different. It is true that the members form a compact unit, but since they do not share a common dwelling there is always a cross division. Fathers are not as attached to their babies, or if they are they do not nurse them as readily as their neighbours in Guadalcanal. However, as soon as a boy is about two years old his father begins to pay great attention to him, taking him away from his mother to sleep in the men's house. From this time on he assumes a rôle more like that of the Guadalcanal parent. He bathes his son regularly in a convenient water-hole, comforts him if he has hurt

himself, and generally teaches him what a small boy ought to know. In Malaita the two are drawn closer together because the son is his father's heir, the mother's brother having almost no part to play. Yet there is one important difference, namely, that for some reason the boy does not seem to enjoy helping his father. Perhaps this is because he is not expected to accompany him to the garden every day. Instead he is often left at home in the care of some small boy or girl scarcely older than himself. Later on, when he

can take care of himself, he joins a gang of boys of his own age and spends his time fishing on the reef or playing in one of the streams. The afternoon is devoted to football or a cricket match. The excessive heat does not spoil the enthusiasms of boyhood.

Girls continue to live with their mothers, and have very little time for play, for very early they have to take their share of the work in running the house. The usual job of little girls is looking after their still smaller brothers and sisters. It is no



Parrots are caught young, and tamed. They are attached by the leg to a looped stick and carried about. The islanders, though not sentimental about animals, show fondness for their pets



... plants include bananas (on the left), tobacco (on the right) and yams (a yam vine in the centre is trailing over a stump)

uncommon sight to see a little girl of about eight years of age struggling under the weight of a baby she can scarcely lift. For hours on end she may be left alone while her mother is at work in the garden or away at the market. Usually there is a grandmother or some other old woman to run to in time of trouble, but a small girl is perfect mistress of most situations. Other tasks of small girls are sewing stiff baked pandanus leaves into mats to serve alternatively as blankets or umbrellas, filling the bamboos which serve the household as water-bottles, sweeping the house, and helping with the cooking. In addition they may have to instruct their smaller sisters in all these tasks. Women do not visit one another's houses very much—intrusion would be resented—but sometimes they themselves take the water-bottles to the stream of an evening and sit for a few minutes of quiet chat.

AGRICULTURE

The Solomon Islanders, women as well as men, are, above all, gardeners. One old woman of my acquaintance who was so crippled and decrepit that she could scarcely walk, though she had a grown-up family who looked after her well, used often to visit her daughter's garden and bring back two potatoes, all that she could carry. This visit used to take her the better part of a day, three hours to reach the garden a mile and a half away and three hours to return. She seemed to be clinging to life by this pretence at cultivating the soil. Native crops include taro (a plant with an edible root resembling the arum lily), yams, sweet potatoes, maize, bananas and tobacco. Tobacco leaf is cured in the smoke of the household fire.

In both Guadalcanal and Malaita the garden is a family concern. Men do the heavier work, such as clearing the ground, fencing it in and digging (the only implement for digging is a stick). Women collect the rubbish and burn it after the men have cleared the ground, and they also

do any weeding necessary. Planting may be done by either sex. In Malaita the garden is almost as sacred as the hearth, and no one would think of visiting a person's garden unless he were invited or had urgent business with the owner. Occupying different houses as they do, husband and wife like to be alone with each other during their work. In Guadalcanal although each family works its own allotment, visitors are made welcome, and usually a number of families join each other for the midday meal. In Malaita the natives do not eat in the middle of the day, breakfast and a meal at night being considered sufficient. In Guadalcanal, too, a group of families will often combine



'Women as well as men are gardeners. If work is pressing, a mother may have to nurse her baby on her hip as she works'



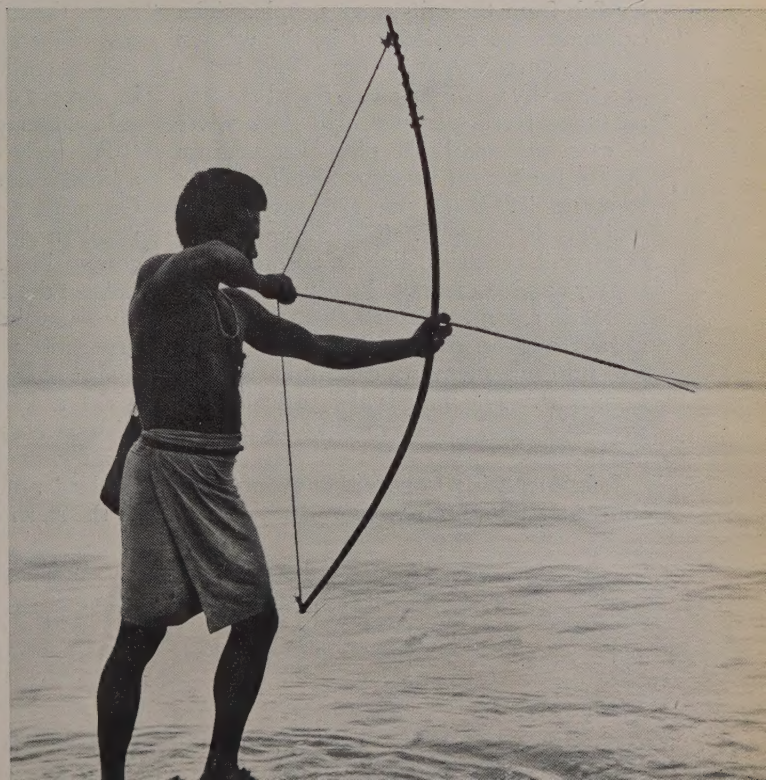
Although small in area, Guadalcanal with its exceptionally heavy rainfall has several large rivers, harbouring crocodiles, and the salt-water people cross these regularly on the way to their gardens

The Malaita salt-water people have no gardens; so the markets, where fish are exchanged for the bush people's vegetables, are a feature of life there. Goods are carried in pandanus-leaf mats





One of the many ways in which the salt-water people do their fishing is for a party to surround a shoal, drop nets in a circle and then bring spears into action



The spear is preferred for both sea and river fishing in Guadalcanal, but the Malaita salt-water people specialize in catching fish with bows and arrows: a two-pronged arrow is used

to weed each other's plots or to plant yams. This makes the work pleasant and the time passes more quickly.

In Guadalcanal one frequently sees a father at work with a small boy on his back, clinging tightly as he cuts the undergrowth or sets stakes in position for the vines of the yams to trail over. In Malaita, small children are usually left at home, and are no encumbrance, though it is true that, if work is pressing, a mother may have to nurse her baby on her hip as she works. Children are sometimes taken along too and instructed in how to plant and cultivate a garden, especially if there are no smaller brothers and sisters to mind at home.

THE MARKET

A regular feature of Malaita life is the market. The salt-water people here have no gardens—indeed there is no room for them on the tiny islands. On the other hand, they have ample opportunities for fishing. So markets are held in which vegetables from the bush are exchanged for fish from the salt-water people. The exchanges are carried out by the women at spots agreed upon, either on the beach or a near-by reef. In olden days the men, all fully armed, accompanied their wives in case quarrels broke out. Proceedings do not begin until everyone has had time to assemble. Then packages are opened and goods exposed. The value of the commodities varies slightly according to supply and demand, but not to any marked extent. Nevertheless, there is always a good deal of brisk bargaining and not infrequently a certain amount of argument. The noise is always deafening, even when only a hundred or so women are present.

It is interesting to note that everywhere salt-water and bush women carry differ-

ently. The former always put their burdens on their heads, a small pad acting as support. I have seen women carrying even a sheet of paper in this way. Bush women carry on their backs, though there are different methods of adjusting the straps which keep the load in position. In the Guadalcanal bush they pass over both shoulders, while in north Malaita the whole burden is supported by the right shoulder only.

FISHING

The Malaita salt-water people catch fish by every conceivable means—with hooks and lures, with nets of all shapes and sizes, with poison and with bow and arrow and spear. In Guadalcanal, though bows and arrows are used for shooting birds, the spear is preferred for fishing. The natives waded out to where the waves are breaking and there stand with spear poised ready for the first fish they see. They also use spears for fresh-water fishing. A favourite method of river fishing is to make a drive. One party, beating the water with sticks, forces the fish to swim up stream, where a row of men crouch with nets, heads under water in order to see better. Shell-fish, an important addition to the larder, are as a rule gathered by women and girls.

Formerly Solomon Islands canoes were as fine, if not finer than any in the Pacific. Often they were inlaid with mother-of-pearl and elaborately decorated with cowry shells. The Florida natives are at present the finest craftsmen, but their work does not come up to that of previous generations, despite an improvement in tools. Canoes are made from planks which are sewn together and then caulked with native gum. No outriggers are used. Small canoes have a peak at each end, but the larger ones, called *binabina*, have a peak at the stern only, the bow being left low.

PHOTOGRAPHIC NOTES

Edited by F. S. Smythe



As the result of intensive chemical research, the light-sensitivity or 'speed' of modern photographic emulsions has been greatly increased. Photographs can now be taken as long as there is sufficient light for the human eye to see.

5. FILMS

The lens of a camera is designed to throw an image on to the film. The film is coated with a light-sensitive compound of silver on which a latent record of the image is registered. By 'development' this record can be turned into a negative picture, from which the finished print can be made.

Silver, when combined with bromine, forms a compound the nature of which is changed when exposed to light. In the manufacture of films this silver bromide is prepared in such a way that it can be coated on to a celluloid film base, and after drying cut into strips and rolled on to the spools so familiar to photographers. The first step is to dissolve solid metallic silver in nitric acid to obtain the salt silver nitrate. For this purpose the leading firm of film manufacturers in this country use more silver bullion than any other organization except His Majesty's Mint. The bars of silver are placed in special containers of nitric acid, where the silver dissolves and later crystallises out as silver nitrate.

Silver nitrate dissolves in water. If sodium bromide (similar to 'sodium chloride', or common salt) is added to a solution of silver

nitrate, the silver combines chemically with the bromine, and a slightly yellow, insoluble silver bromide appears and sinks to the bottom of the vessel in which the experiment is carried out. To fix this yellow silver bromide to the surface of the film gelatine is used.

Gelatine dissolves very readily in warm water. This solution can in turn dissolve a salt such as sodium bromide. In the manufacture of photographic film, sodium bromide is added to a warm solution of gelatine in water, and the whole stirred up to make sure that the bromide is evenly distributed. The silver nitrate dissolved in water is now added in exactly the right proportion for the bromide. The yellowish silver bromide then occurs perfectly evenly distributed throughout the warm solution.

The gelatine solution is sufficiently solid to hold the grains of silver bromide in suspension. This 'emulsion' can easily be coated on to a celluloid film base. After cooling, the gelatine sets as a solid jelly, with the silver bromide grains scattered evenly throughout. This is the smooth yellow coat which covers the surface of an undeveloped film.



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